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NEW JERSEY'S YARDSTICK FOR HEALTH OFFICIALS

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Secretary to the Examining Board of Health Officials, Trenton, N. J.

MORE THAN twenty years ago the New Jersey Legislature enacted a law prohibiting local health boards from appointing health officers and sanitary inspectors who were not licensed by the State Department of Health.* Qualifying examinations have been conducted at regular intervals without intermission since that time, and, although more than two hundred health officers and seven hundred inspectors have been licensed by the State Department of Health, it is difficult to measure definitely the concrete benefits resulting from the work.

In New Jersey, every city, borough and township, regardless of its size, maintains a separate health board. The per capita expenditure for health work in the majority of the smaller municipalities is ridiculously small, and these meager appropriations make it impossible to employ full-time health officials; of course, trained sanitarians who might be employed on a part-time basis are not available. In the townships, the township committee automatically becomes the board of health, and these men, innocent of the rudiments of sanitation, select the official, if any be employed, who is to enforce the State Sanitary Code, the state health laws, and any local sanitary regulations which may have been adopted. In many of the larger communities the minor positions, if not that of the executive officer, still are considered suitable rewards for the politically faithful.

If it be admitted that the enforcement of the sanitary laws requires even the slightest degree of training, experience and tact, then it is apparent that if any effective safeguard can be erected to protect the public from untrained officials, the choice of the township committee on the one hand, or the recipient of municipal political favoritism on the other, much has been gained, intangible though it be. Of course, the remedy for these conditions is the creation of health districts sufficiently large to employ a trained staff on a full-time basis, and the divorcing of health work from local politics. It may be that both of these conditions will some day be fulfilled; but even then an examining board will serve a useful purpose. According to conditions past and present, no better means of preventing the employment of ignorant, tactless, inexperienced, dangerously incompetent

* Chapter 215 of the Laws of New Jersey of 1903, as amended by Chapter 73 of the Laws of 1920, authorizes the State Department of Health to cause examinations to be held by such persons and at such times and places as it may appoint and under such rules and regulations as it may adopt, for the purpose of determining the qualifications of applicants for licenses as health officers, sanitary inspectors, and plumbing inspectors. The grades and duties of health officials, and the date after which no local health board may employ such health officials who are not licensed by the State Department of Health, are fixed by the act.

health workers has been presented, and during the entire twenty years of the existence of the board no valid reason has been advanced for the discontinuance of the licensing system.

EXAMINATIONS ARE QUALIFYING, NOT COMPETITIVE

The examinations conducted in pursuance of the provisions of the law are not competitive. Licenses are issued to all persons who pass an arbitrary standard and the grades are not made public. The examination is limiting, rather than selective. The board of examiners is at present composed of five members; three are members of the staff of the State Department of Health and two are local health officials, selected primarily to represent the several phases of public health work. The board examines candidates to find out, not how little the prospective health official knows, but how much actual knowledge he possesses. Three factors enter into the examination: the experience and training of the candidate; his knowledge of public health practice as shown in his written answers to formal questions; and his grasp of the principles of public health and his ability to reason, as revealed in replies to oral questions.

The written examination covers, in ten questions, the following subjects: (1) The legal basis for local health boards and their functions; (2) the epidemiology of communicable diseases—usually three or more questions; (3) insect borne diseases and insect control; (4) sanitary engineering problems in connection with water purification, and sewage and garbage disposal; (5) special subjects, such as municipal tuberculosis, child hygiene, and venereal disease programs; (6) problems in morbidity and mortality statistics; and (7) definitions of words, covering the whole range of public health, to indicate the candidate's grasp of the language of hygiene. The properly trained or experienced health official is able to pass this examination with little difficulty, but the inexperienced, uneducated, untrained aspirant for appointment upon the local health board staff usually fails very badly.

The oral examination is designed to bring out the candidate's ability to think along sanitary lines. He is asked simple, fundamental questions as, for example, "why does the exposure of human excrement on the ground constitute a danger to public health?" His answer suggests leading questions, and in the end it is usually possible to decide whether or not the candidate really knows and thinks, or is reeling off some pseudo-scientific jargon. Other questions, covering such subjects as the purpose of the Schick test and the principles of water purification, are productive of similarly revealing answers.

Later, the candidates are graded on their indicated training and experience, their knowledge, and their ability to reason. The relative weights of the three factors included in the examination are six for the written, two for the oral, and two for experience. As a rule, from one-third to one-half of the candidates for the health officers licenses, and from one-tenth to one-fifth of the candidates for sanitary inspectors licenses are successful.

The examinations for the various grades of sanitary inspector are like the health officers' examination, except that the questions are made easier (more emphasis being laid on practical sanitation and less on the technical knowledge which underlies its application), and the answers are marked less stringently. Candidates for positions of food and drug inspectors, meat inspectors, and plumbing inspectors also are examined by the board. Appropriate questions are prepared, but no oral examination is given in these grades. The Bureau of Engineering of the State Department of Health conducts oral and written examinations of candidates for the positions of water and sewage plant operators. Some of the cities of the state are governed by the Civil Service rules, and in these places the competitive Civil

Service examination is based upon the questions prepared by the board and upon the grades assigned according to the marks given the written examination.

The examination of operators of water purification and sewage disposal plants is provided for by an act adopted subsequent to the law providing for the examination of other health officials.* Under this act the State Department of Health examines and licenses such operators; municipalities and water companies are prohibited from employing unlicensed operators; and the department may revoke licenses if the holders are found incompetent or willfully negligent in their duty. The department may also compel offending municipalities to improve dangerously insanitary conditions and compel the employment of competent operators. This act, too, has tended to remove the positions of operators of water treatment and sewage purification plants from the influence of politics. It improves the working conditions of operators and tends to improve the relations between the supervising engineers of the State Health Department and the operators of the plants. It is an important step in insuring the safety of potable water supplies, and in many cases has saved municipalities from losses due to deterioration of sewage plants which occur from the employment of incompetent operators who otherwise would be employed.

PREVENTING APPOINTMENT OF THE UNFIT

During the years that these examinations have been held, many hundreds of candidates for licenses have failed to pass the examination, some of whom it is presumed would have been appointed had they been licensed. That local health administration in New Jersey has benefited by this weeding out process cannot be denied. Examiners have listened to innumerable candidates who hold the most absurd ideas about the communicable diseases and their control, who know nothing of the principles or the rules of isolation and apparently have no desire to learn what the laws provide, and whose ideas of noxious vapors, sewer gas, and the relation of dirt to disease, would be ludicrous if they were not positively dangerous. That the appointment of such persons to positions of responsibility would constitute a public menace can scarcely be denied, for in the smaller communities the sanitary inspector constitutes the whole health board staff; he acts as executive officer, epidemiologist, public health nurse, and nuisance inspector, all without adequate supervision as a rule. In the larger health boards the sanitary inspector must be given some responsibility and the opportunities for harm in the appointment of unsuitable officials must be apparent.

The examinations have accomplished more than this negative benefit, for many inexperienced and untrained but able persons have studied or have been taught by qualified teachers the principles of public hygiene,* so that they might pass the examination; and there can be but little doubt that the employing health boards have profited by this study. The examinations have tended to raise the qualifications of the local health official, especially in the smaller communities and remove the positions from political influence, but the system is by no means a panacea for all the ills that affect local health administration. Apparently we have yet a long way to go before municipal officials will consider health administration a job requiring technical training. At present, the temporarily unemployed grocer's clerk, the brick layer, the undertaker's assistant and the failing medical practitioner all appear to consider themselves qualified to carry on the duties of

* Chapter 23, P. L. 1918 of New Jersey.

* To enable appointed health officials or persons aspiring to positions on health department staffs to obtain some training in public health administration, the State Department of Health in conjunction with the State University is offering short courses for health officials in the Summer Session of Rutgers University at New Brunswick, New Jersey. Two courses will be given: one for public health nurses, which will include advanced work at subsequent college sessions; and another for health officers and sanitary inspectors, which will be complete in one course.

the executive officer of the local board of health.

Until the time comes when larger health units are created which will be able to provide appropriations sufficient to pay salaries large enough to attract trained officials, we must depend, in the rural and small urban communities, upon the part-time efforts of the local handyman. As long as we must deal with him, or through him, public safety demands that he have some education in the principles of public hygiene. Apparently the requirement of a license as a prerequisite to appointment by a local board of health as health officer or sanitary inspector, as under the New Jersey law, is the most practical way of weeding out the dangerously unfit persons from those who may be more nearly competent.

TYPICAL QUESTIONS INCLUDED IN THE EXAMINATION FOR HEALTH OFFICERS IN NEW JERSEY

July 25, 1924

1. What persons are required to make reports of births, marriages, deaths, and cases of communicable diseases? To whom should such reports be made and within what time? What disposition is made of the reports when received by local boards of health?
2. (a) To what uses may a laboratory be put in connection with the sanitary supervision of the production, preparation, and distribution of the food supply of a municipality?
   (b) Describe in detail how you would collect a sample of food or milk in order to use the evidence obtained in a legal action against the vender.
3. (a) What three specific diseases are generally classified as venereal diseases? Are these diseases required to be reported, and if so, to whom? Name and describe the causative agent of two of these diseases.
   (b) Describe in detail how you would collect specimens from suspected cases of these two diseases for laboratory examination, and describe briefly the laboratory tests which should be made.
4. (a) What diseases may be spread by the following insects:
      (a) the common house fly, (b) mosquitoes, (c) body lice, (d) fleas.
   (b) How may these insects be controlled?
5. (a) Describe a safe sewage disposal system for an isolated dwelling located on the water shed of a potable water supply.
   (b) What are the requirements of the State Sanitary Code with regard to privies?
6. Describe briefly three methods in general use for the purification of surface water for municipal use. Discuss the advantages and limitations of each method and state the conditions under which each can be most advantageously used.
7. (a) Name a reliable test that indicates a person's susceptibility or immunity to diphtheria.
   (b) Describe the technique of application of this test.
   (c) What are the manifestations of such a test?
   (d) How are the results interpreted?
   (e) Describe the method by which a susceptible persons may be immunized against the disease.
8. (a) What is the Pasteur treatment?
   (b) Describe briefly how the material used in the Pasteur treatment is prepared.
   (c) What are the provisions of the law and State Sanitary Code in regard to the administration of the treatment by the local health department?
9. (a) Give a list of the diseases which must be reported by physicians to a local board of health under the provisions of the State Sanitary Code.
   (b) Give the name of the causative bacterium or organism for each of the diseases you have mentioned above, under (a), for which the causative agent is known.
10. (a) State ten specific purposes for which local boards of health may pass ordinances.
    (b) How may a health officer legally proceed to enforce measures for the protection of the public health in the absence of local ordinances?

PUBLIC HEALTH TRAINING*

THE MATERIAL presented in the report of the committee may be divided into two parts: First, the presentation of data regarding courses in public health offered during the last year, and second, a proposed plan for the subsequent work of this committee.

PROFESSIONAL COURSES IN PUBLIC HEALTH

The committee presents herewith the data for the last academic year indicating the number of students taking courses leading to degrees in public health. Table I indicates the institutions offering such degrees, the number of candidates and the number of degrees granted. These data have been obtained by correspondence, and we have tried to make them complete.

Table II indicates the total number of various public health degrees granted in the United States and Canada during 1924.

Data collected by the United States Public Health Service indicate that during the past two years correspondence and reading courses in public health have been conducted by seven state departments of health and by six universities. A review of the nature and extent of these courses will be found in *Public Health Reports* for August 22, 1924 (Vol. 39, No. 34).

The data presented in Table III indicate the number of students taking one or more courses in public health at summer schools conducted by institutions offering such work.

The interest in summer school courses in 1924 was stimulated by the Public Health Service, which selected four universities of the United States to which it gave assistance in developing summer school courses by coöperation in securing teacher personnel and by providing extensive and widespread publicity. One of the announcements prepared by the Public Health Service contains a list of fifty-two additional institutions of higher learning which offered courses in public health on their own account. The public health summer school offers an important opportunity and the work of the Public Health Service was doubtless of appreciable value in calling nation-wide attention to the possibility of summer study. But while such assistance might be provided to initiate the more extensive use of summer schools, it is recognized that the Public Health Service as a branch of the Treasury Department cannot continue to select and promote summer schools for individual institutions, and at its last meeting the Advisory Committee of the Surgeon General voted "that the Public Health Service send out no more advertising material or circulars concerning public health summer schools except such as can be given concerning courses offered anywhere or everywhere." It is to be noted that public health workers are taking advantage to an increased degree of single courses in schools of public health. Data in Table IV indicate the number of students who are not giving the major part of their time for study and who are not candidates for a degree, but who took one or more courses in public health during the academic year of 1923–24.

PROPOSED PLAN FOR SUBSEQUENT WORK

In the report of this committee accepted by the Association a year ago, two new activities for the committee were approved:

* Report of the Committee on the Standardization of Public Health Training, presented to the Governing Council of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 20, 1924.

TABLE I

NUMBER OF STUDENTS ENROLLED AND DEGREES CONFERRED IN COURSES REQUIRING AT LEAST ONE YEAR OF RESIDENCE AND LEADING TO A PUBLIC HEALTH CAREER, 1924.

School	Degree	Number Enrolled 1924	No. Degrees Conferred 1924
University of California	Dr.P.H.	0	0
	M.A.	2	1
	A.B.	5	4
Yale University	Dr.P.H.	2	0
	Ph.D.	18	2
	C.P.H.	4	1
	M.S.	2	2
University of Louisville	(Health School Closed)		
University of Georgia	Dr.P.H.	2	2
	M.P.H.	0	0
	B.P.H.	3	3
Johns Hopkins School of Public Health	Dr.P.H.	26	14
	Sc.D. in H.	39	9
	C.P.H.	13	13
	B.S. in H.	7	3
Harvard School of Public Health	Dr.P.H.	6	5
	M.P.H.	5	4
	B.P.H.	1	1
Massachusetts Institute of Technology	Dr.P.H.	1	1
	Ph.D.	4	2
	S.B.P.H.	20	4
University of Michigan	Dr.P.H.	2	1
	M.S.P.H.	2	1
University of Minnesota Medical and Graduate Schools	M.A.	4	1
Detroit College of Medicine and Surgery	Dr.P.H.	..	1
University of New York and Bellevue Hospital Medical School	C.P.H.	..	8
Ohio State University	M.S. in P.H.	0	0
	M.S.	2	2
University of Pennsylvania School of Hygiene and Public Health	Dr.P.H.	..	0
	Ph.D.	..	0
McGill University	D.P.H. (Diploma)	1	1
University of Western Ontario	(No data received)		
L'University Laval	(No data received)		
Queens University	(No data received)		
University of Toronto	D.P.H. (Diploma)	..	5
	Ph.D.	..	1
University of Iowa	M.S.	6	6
		177	98

1. A survey of the courses of study for the training of the various special types of sanitarians or specialists in the field of public health.

2. A study of the minimum and fundamental subject matter essential for public health degrees.

It was the belief of the committee that these activities are of interest to all sections of this Association, representing as they do the organized public health profession in all of its divisions. Each section contains a special type of sanitarian and therefore should have a voice in any activity of the Association which concerns the training of sanitarians for its particular specialty. Accordingly, with the approval of the Governing Council, the committee has added to itself one representative from each section of the Association.

The committee is still of the opinion that the activities recommended a year ago should be undertaken, and we believe that the work should be done by the American Public Health Association either through or with the advice of the continuing Committee on the Standardization of Public Health Training under its present type of organization. This Association is the one body which fairly and evenly represents all of the different types of sanitarians. It was organized for the promotion of public health. It can only achieve its object through the public health profession. It *is* the public

TABLE II

THE NUMBER OF DEGREES IN PUBLIC HEALTH GRANTED IN U. S. AND CANADA IN 1924

Doctor of Public Health	24
Certificate in Public Health	22
Master of Science	10
Doctor of Science in Hygiene	9
Bachelor of Science in Hygiene or Public Health	7
Diploma in Public Health	6
Doctor of Philosophy	5
Bachelor of Public Health	4
Master of Public Health	4
Bachelor of Arts	4
Master of Arts	3
	98

health profession. It is made up of the men and women who make public health their professional and life career. History shows that the advancement of public health comes mainly from such people and not from those who are transient visitors in this profession either by political appointment or by any other expedient.

TABLE III

NUMBER OF STUDENTS IN INSTITUTIONS MENTIONED IN TABLE I WHO TOOK ONE OR MORE COURSES IN PUBLIC HEALTH IN SUMMER SCHOOLS IN 1924

University of California	250
Harvard School of Public Health	19
Massachusetts Institute of Technology	34
University of Michigan	16
University of Minnesota Medical and Graduate Schools	8
University of Iowa	31
	358

TABLE IV

NUMBER OF STUDENTS NOT CANDIDATES FOR A DEGREE BUT TAKING ONE OR MORE COURSES IN PUBLIC HEALTH DURING THE ACADEMIC YEAR 1923–24

Yale University	9
University of Georgia	127
Johns Hopkins University School of Public Health	104
Harvard School of Public Health	6
Massachusetts Institute of Technology	57
University of Michigan	4
University of Minnesota Medical and Graduate Schools	6
Ohio State University	233
University of Iowa	588
	1,134

It is possible that the data in Table IV are not entirely comparable since in some cases regular undergraduate courses in hygiene may have been included.

The continual improvement of the quality of the public health profession is and always has been a fundamental objective of the Association. We have long since recognized sanitarians as a distinctive and somewhat diversified group. Other agencies can help in creating the demand for a trained personnel but there is no other group to which this Association can delegate its responsibility for assisting in the improved training of the sanitarians of the future. We cannot select the engineering society, the medical association, the chemical society or any other agency to take the leadership in suggesting the best ways of training sanitarians. The best sources of sound suggestions are the various groups of successful sanitarians of the present day; these make up the various sections of this Association. In the counsel of the many there is safety. It is the opinion of this committee that the various phases of its work should be conducted in close coöperation with the corresponding sections of the Association.

The need for further study of the courses leading to public health degrees is more than ever apparent. The rigid standardization of these courses of study has always seemed to the committee, and we believe to the Association, as undesirable. We do not propose that this Association should attempt to force a standard curriculum upon schools of public health; but if public health degrees are to be of any value to those who have spent years of study in securing them, there must be some reasonably common standard of proficiency. We do believe, therefore, that we should know the facts and that the teaching groups should have the viewpoint of the men in the field.

An editorial in the February issue of the AMERICAN JOURNAL OF PUBLIC HEALTH dealing with the subject of "The Medical Diploma Scandal" contains the following statement: "As far as the medical end of this scandal goes the matter can be left to the strictly medical journals, but unfortunately public health is also involved. One of these schools has been giving the degree of Doctor of Public Health, apparently based on a series of lectures, two forty-five-minute periods a week, given in the senior year. The professor in charge of this course has never, so far as the evidence goes, had any special training along public health lines." The existence of such a diploma mill is of vital importance to every qualified sanitarian, and yet a knowledge of it could not be obtained by this committee through the correspondence method. The correction of a condition like this does not demand a course-hour standardization but rather the light of publicity.

We need information as to what is being done to protect in some measure the standards of the degrees in public health, and if the proposed survey of the instruc-

tion now offered could be made in close coöperation with the various sections of this Association, it seems certain that suggestions would result which would be of value even to our best schools of public health. This is a continuing as well as an important task, which demands both now and later the actual visitation of the schools by a representative of the Association.

We propose therefore a survey of the public health courses now offered in the training of both administrators and specialists; and also the development of a plan to subsequently provide visitation of schools offering public health degrees by some representative of the Association.

Such a plan demands funds for its execution. Means of securing the sinews of war cannot profitably be discussed in a committee report. It is the hope of the committee that the Association will accept this report and the plan for enlarging the scope of these activities, leaving the task of finding ways and means for its execution with the committee and the Governing Council or its Executive Committee.

Respectfully submitted,

C. E. TURNER, *Chairman*
J. C. FITZGERALD
W. H. PARK
W. H. WELCH
C.-E. A. WINSLOW

Section Representatives:

C. C. SLEMONS—Public Health Administration
B. WHITE—Laboratory
W. J. V. DEACON—Vital Statistics
H. A. WHITTAKER—Sanitary Engineering
C. E. FORD—Industrial Hygiene
H. W. REDFIELD—Food and Drugs
TALIAFERRO CLARK, Child Hygiene
E. G. ROUTZAHN—Health Education and Publicity
G. HODGMAN—Nursing

SYMPOSIUM OF THE VIEWS OF SPECIALISTS

The following comments were made at a dinner conference on Education of Sanitarians at the Detroit Annual Meeting, October 21, 1924. Representatives of the different sections of the Association spoke, giving their views. Dr. Victor C. Vaughan presided, and Dr. Evans opened the discussion from the viewpoint of the public health administrator.

WILLIAM A. EVANS, M.D., FELLOW A.P.H.A.

The Public Health Administration Section is very much interested in the stability of the profession of health officer. If the suggestion is to be followed that the degree of Doctor of Public Health should be a postgraduate degree equivalent or nearly equivalent to the degree of Doctor of Philosophy, there are not many men or women in public health work who can afford to qualify for that degree in the light of the emoluments of public health work, except it be the administrative heads of departments. The course of instruction as it is given lays a foundation for capacity as a public health administrator but does not peculiarly qualify for the position. A public health administrator must have executive ability for his duties are largely executive; he must be a leader; he must outline policies and secure the adoption and the execution of those policies. The qualifications for such a position are not necessarily technical in character, but it is desirable that the man should have some technical information or technical training in order that he may better judge of the capacities and the work of those who are discharging the duties of the more technical positions in his department. It would be almost impossible as I see it, for an institution of learning to outline or to carry on a course of instruction that would qualify a man for administrative fitness, decision, leadership, strategy and the other things that are peculiar to the office of the administrative head of a department. And yet the men at the heads of departments are anxious that there shall be provided better opportunities than there are now for technical training in order that they may find men technically trained available for the positions in their departments.

It is a matter of common information that, even where we have civil service honestly administered, we select men usually by a writ-

ten examination, an imperfect method of selection, but about the best that is practical or expedient, and having selected them we have to train them on the public's time at the public's expense. That is true all the way down the line. It is less true of the laboratory workers than it is of any other group.

I feel very certain that I voice the sentiment of the men in the Public Health Administration Section when I say that that section is very much interested in measures to promote the security of the people who work in the health department in the various bureaus; and as a measure for promoting that security, we think of capacity and training.

We have had some opportunities for training in public health in this country for a considerable time, and we have turned out a great many men and women who had the benefit of training. Our greatest difficulty has been to have those people feel secure in that work. Most of the schools now training public health people have difficulty in getting them jobs, and afterward there is a good deal of difficulty in their holding those jobs. The time has come to turn the thing around and do with public health what we did a generation or so ago with the practice of medicine; in other words, provide by law for the licensing of public health officers; pass a law in each state in the Union providing for the licensing of health officers. That is the way the blacksmiths have gotten security for their profession. It has been applied to practitioners of medicine, nurses, dentists and to pretty nearly everybody else.

There would have to be several kinds of licenses. We would have to have a licensed public health nurse, as distinguished from a licensed nurse giving curative or bedside care; a licensed medical inspector for schools; a licensed laboratory man; men licensed in vital statistics, and so on. Just as the licensing of doctors was gradual, we would start with a standard that met the standards of the time and gradually elevate those standards. I can think of no other way for establishing a profession of preventive medicine with its various divisions and ramifications, no other way for establishing the security of health workers that would be comparable. There would follow quite naturally the development of opportunities for education to supply the needs of those who would care to go into this profession, a profession which had been made secure.

ABEL WOLMAN, FELLOW A.P.H.A.

My remarks are restricted largely to that field of which I am least ignorant, that is, engineering as applied to the solution of public health difficulties. The most fruitful contribution to this discussion would lie probably in an analysis of existing methods and subject matter of training in this restricted field, with some indication as to opportunities for supposed improvements in such programs.

Within the past few months a study has been made by a representative of the United States Public Health Service of sanitary engineering courses in engineering colleges in the United States. The report indicates that in the ten colleges which at present confer degrees in sanitary engineering, a very small proportion of the total allotment of time is devoted to sanitary engineering and public health subjects. On the average, a total of only about one-tenth of the available instruction time is devoted to so-called sanitary engineering and public health, of which public health instruction consumes only about four-tenths of 1 per cent. In the sanitary engineering courses most of the time is devoted to the teaching of the more orthodox principles of water supply, sewerage, refuse disposal and closely allied problems. Little, if any, time is devoted to problems of community planning, housing, sanitation of industrial processes, sanitation of food supplies, insect and rodent eradication or other public health questions. As a matter of fact, the standard sanitary engineering course in the average institution differs from the strictly civil engineering course only in that a slightly additional time is devoted to sanitary problems and to the more detailed study of chemistry and biology.

It appears from this very brief review of present practice in sanitary engineering pedagogy, that first of all a new or extended definition of sanitary engineering is desirable for teaching purposes. The application of engineering methods and principles to the solution of public health problems is not limited to water supply, sewerage and refuse disposal. The control of environment for the improvement of health has expanded in recent years in so many directions that the application of engineering technology to their solution is varied and extensive. In many instances, however, it does not appear that this expansion in possibility of practice and research has been met by a corresponding adjustment of college curricula.

With these facts in mind, it would seem that a fruitful field of investigation is offered in an inquiry into the desirable studies which ought to be incorporated in the training of the nonmedical and medical sanitarian, with particular reference to the control of environment as against the control or modification of the individual. When such an inquiry is made, it may be predicted that expansion both in time and in subject matter will be found necessary in order to acquaint the medical and nonmedical student with the technique and the possibilities of the control of environment in the improvement and safeguarding of health.

A place should be found in such future courses for detailed study of the control and guidance of the growth of communities, of the provision of adequate and healthful housing, of the safeguarding of food supplies and the removal of human wastes, of the eradication of insects, vermin and rodents, of the sanitation of industrial enterprises of all types, of the science of epidemiology, of elementary physiology and of vital statistics.

Obviously, the inclusion of all of these fields of observation will require more time for the education of the sanitarian specialist than has been the practice in the past, because most of these suggested studies must be superimposed upon the already existing cultural, pure science and allied engineering courses.

The same extension of training, in less elaborate form, in most of the series described above, would appear to be necessary for the medical sanitarian, whose knowledge of the mechanics of the control of environment is frequently meager and often misleading.

It does not appear to be unwise to suggest in the above schedule for the specialist the incorporation of instruction in elementary physiology, since anyone entering upon work actively identified with the improvement of health is seriously handicapped without an understanding of the mechanism and functioning of the human organism. It is not amiss to point out that in many instances the fundamental courses in biology, chemistry and bacteriology should be much reinforced in schools granting sanitary engineering degrees, so that such notions as, for example, that typhoid fever epidemics may be spontaneously generated in decayed vegetable wastes, may be removed from the category of axiomatic knowledge of the recent graduate.

The development of such a program of inquiry as here briefly outlined may tend also to bring closer together, both in spirit and in place, the courses in the control of environment to those dealing with the control of the individual, in the more modern schools of public health training.

C. C. YOUNG, FELLOW A.P.H.A.

I shall confine what I have to say largely to a plea for this committee and section to define the fundamental requirements of a public health laboratorian so that we may have a basis for licensing. A little experience we went through in an attempt to sound out the temper of the medical profession and of the sanitarians in licensing laboratorians made us think that there had never been any definition of what a nonmedical laboratorian in public health work should know.

The other day a doctor in Central Michigan associated himself with the health work of the community. He came into our organization and asked for a laboratory worker. He wanted this person to do some parasitology, some blood chemistry, some water and sewage bacteriology, something with the iodine content of the water supply, something in throat cultures, and if possible do Wassermann tests, also basal metabolism, and X-ray work. That is what they expect of the laboratorian today.

If I advertised for a laboratory worker to take charge of a small public health laboratory, I can predict from experience that I would have about twelve replies. There would be one medical man who had been unsuccessful in practice, probably about three recent graduates with A.B. degrees including four or five hours credit in bacteriology, two university graduates with Master's degrees in bacteriology, biology or chemistry. Finally, there would probably be four women who had had a nurse's training or had been a doctor's office assistant and were turned out from some institution, after a four or five months course, as public health laboratorians. I would naturally choose the person with best scientific training and give him one or two years apprenticeship in public health laboratory procedure in bacteriology, serology or chemistry.

What I hope that this Association can do is to define minimum requirements for scientific training in academic courses, and superimpose certain requirements for practical experience and training. Then arrange in some way an apprenticeship with good, sound public health laboratories, for which graduate credit or ad-

vance public health degree would be given, so that young men and women on receiving a Master of Science degree can go into the public health laboratories and correlate their technical procedures with the work to be done. If we can do that, we are going to have a group of efficient public health laboratorians.

EMERY R. HAYHURST, M.D., FELLOW A.P.H.A.

These are my personal opinions and not necessarily those of my colleagues in the section of industrial hygiene. Of course, I am most familiar with the plan of Ohio State University, which is for the training of industrial physicians and surgeons, with the object of bringing home to them the industrial hygiene viewpoint. Our plan provides half-time work for nine months, that is, three-quarters of academic work taken, either in the morning or the afternoon, and the other half-time devoted to an actual job with a plant in the field. This course includes the following: First, a course in industrial hygiene technique and theory; second, the standards for the 12 or 15 personal hygiene hazards that are commonly met among industrial workers; third, the standards to be observed in investigating or surveying a plant or an industry; and fourth, the standards for physical examination, such as those created by the American Medical Association. The curriculum includes a course in industrial surgery and medicine, principally surgery, a course in general sociology, a course in economics, one in personnel and abnormal psychology, one in demography, a course in public speaking and a course in public health problems or preventive medicine, provided that has not been taken in the regular curriculum of the medical course. Next comes a course in nutrition and the evaluation of diets, and lastly, a course in public health nursing theory. That may look like a large program, but when you consider that it is divided into three quarters, these courses are easily covered in the course of a year in what we call a half-time arrangement. Though this course has been offered for two years, no one has registered for it!

The next point I am asked to speak on is the matter of extension. Why not use the usually qualified men in this field of work, that is, the regular physician, the engineer, the chemist as usually provided with degrees for those respective professions. The next step is to urge that city and state health officials become interested in industrial health. We should encourage recent graduates in medicine, engineering, etc., to take formal courses in the subject at a university; and then, perhaps we should create a committee on job finding and man finding as a matter of correlation.

H. E. KLEINSCHMIDT, M.D., FELLOW A.P.H.A.

Among the diversity of opinions regarding public health problems there seems to be unanimity only in this, that the problems could be solved if we had public opinion back of us. There is probably no potentate today who has so much power as the public health officer, according to law, and yet we know he can go only as far as public opinion will allow him to go. Repeatedly at this meeting I have heard the statement that if the medical knowledge extant could be marketed to the people, life could be extended about 16 years. That being so, I wonder why we pay such scant attention to the salesman of health. Dr. Vaughan told us last night in sketching the progress made in Michigan in public health matters, that it was due to enlightened public opinion, and that for many years there had been in this state a teacher who prepared the way and who sold the goods to the people. It is very apparent that the publicity and educational material put out by some health departments of years of experience is of the most mediocre kind, if contrasted with that of articles of less value.

At one time in the history of medicine, surgery was looked down upon as one of the hangers-on of a noble profession. Today surgery is quite as respectable as internal medicine. That is not a parallel exactly, but is it not true more or less of health education and publicity? If there is to be standardization of public health education in this country, it should include some fundamental principles and concrete information concerning the means of carrying our knowledge over to the people and moulding public opinion. I would suggest that it would be extremely important to include in any public health curriculum, a scientific knowledge of publicity.

We have accepted the principle that health education in childhood is a sound principle in public health. We should go still further and include the other means of publicity, reaching the adult public as well as the children.

HARRY W. REDFIELD, PH.D., FELLOW A.P.H.A.

There are two classes of food and drugs workers, the laboratory worker and the administrator. We believe that the laboratory worker should be equipped with fundamental chemical knowledge and that he should have courses in inorganic chemistry, qualitative analysis, quantitative analysis, advanced quantitative analysis, organic chemistry and physical chemistry, and that in addition to that, if possible, he should have further courses in biological chemistry and in the analysis of foods and drugs. However, I think it is the experience in almost every laboratory, as pointed out by Dr. Evans and also by Dr. Young, that when you take a worker into your laboratory, you find that you must put him through an apprenticeship, and the time varies from six months to a couple of years.

This laboratory worker should, of course, have a bachelor's degree, and at least one-fourth of his time while in college should be spent in chemistry. Then, because of the fact that in so many of the smaller cities the laboratory worker is required to be not only a chemist but something of a bacteriologist, he should have a course in general medical bacteriology, and, if possible, a course in dairy bacteriology, because that is such an important field of public health work. It is highly desirable that the worker should have more advanced training than that and that he should have done some research work, but I think it is the experience of most of us that this is an ideal seldom met with.

Now we feel that it is not necessary for the administrator to have any extensive training in food and drugs work. Certainly, the attempt should not be made to give him training in the technical work of analysis; but we believe that in fifteen or sixteen lectures he can be given a viewpoint or a slant which will be sufficient to provide information as to the attention needed with regard to food adulterations, drug adulterations, food spoilage or food poisoning, and as to what should be done, and in general, how it should be accomplished. That, in brief, is the point to which our deliberations have reached at the present time.

GERTRUDE HODGMAN, R.N.

I heard Dr. Kleinschmidt mention the fact that the various groups of public health workers should have some knowledge of scientific publicity, and I thought of the many conversations I have had with people about the training which public health nurses should have. When I have tried to condense all of this into a year's course, it has been a very discouraging process. In one particular, I am sure, we are different from the other groups, in that there are always plenty of jobs for public health nurses. Miss Strong said one time that she was quite distressed because one of her students had been offered 35 jobs when she finished the course.

In talking about standards for training, I think we should always remember that our fundamental nursing education is not a standardized thing. There is everything in this country, from schools requiring one year of high school up to the schools that accept only women who are able to matriculate in the university. Then we have the difference in the length of training from two years to three years, and a difference in the actual ability of the institutions to give training. Only in the last few years have there been any endowed schools of nursing; so, in a way, the nurse's education is still on an apprenticeship basis, although I think it is considerably better than that usually sounds.

The first thing I want to bring to this group is the very great need there is for a standardization of nursing schools in this country. When that happens and when the schools are studied for grading or rating, the moral support of the community represented by the group here tonight will be needed, because this will not be an easy thing to do, perhaps not so easy as it was to standardize medical schools.

There has been a committee in the National Organization for Public Health Nursing for the last nine years whose object has been to standardize the training of public health nurses, and they have worked largely through the standardization of post graduate courses. At the present time we can say that we have a fairly definite standard; first, that these courses shall not give a certificate for less than one academic year of work; that they shall be institutions of collegiate grade, and that they shall have qualified nurses as director and instructors. There are twelve such courses on our list at the present time, and these include both theory and practice of public health nursing. In theory, the courses usually come under the head of public health nursing principles, practice, administration, organization,

the social sciences (particularly social case work), public health or preventive medicine, and special fields. They also include nutrition and methods in health teaching, which of course is the particular job of the public health nurse. Then in most instances four months of the eight or nine months' course is given to practical field experience. Last year, as far as I am able to learn, there were 99 one-year certificates granted in these schools; 14 diplomas for a two-year advanced course; three master's degrees and 21 bachelor of science degrees. In the summer schools of six weeks' duration there were over 500 nurses registered, and many of these were gradually working towards the certificate.

Some of the speakers, Dr. Evans especially, spoke of licensure. I believe that may come; perhaps should come; and I believe the first step in that direction in public health nursing probably was taken at this meeting when we presented a joint report on standards for positions in public health nursing. Those standards were very low. When we can put in the maximum standards that we want rather than the minimum, then it might be time to consider licensure, but perhaps not any sooner than that.

HAVEN EMERSON, M.D., FELLOW A.P.H.A.

I presume that what Dr. Vaughan wanted me to speak of is the attempt to put a social content into the training of doctors so that they will understand something of public health when they get out. I think that is a side of the work which brings us down to fundamental differences between education for the practice of medicine and training for the practice of public health. The traditions and practices in the training of physicians have largely ignored the interest of the group or community. The physician has been trained as an individualist. The worker in public health is primarily employed by the group to serve the group, and he has, up to the present time, had little preliminary training in practicing in a group or for communities. It seems to me that until the teachers in schools of public health learn the lesson which was painfully learned in the teaching of medicine, we shall fail to do anything creditable by the injection of theoretical sociological or group principles into the mind of the prospective individual practitioner.

Schools of public health should have the privilege of teaching in health departments or sections of them, or health departments should provide opportunities for apprenticeship. I see nothing more difficult in having a section of a community handed over to a school of public health to administer as its training ground, than a section of a public hospital handed over to the faculty of medicine to administer for the care of the sick.

I think that what is needed as a training ground for every worker in public health is a health department, city or rural, in which the responsible administrative officer is a teaching officer of public health; in which the laboratory is part of the laboratories of the university; in which the engineering work is done by the school of engineering, if there is one; and in which the school of journalism teaches the elements of public education and technique and the principles and practice of publicity. The officers of the university must have the same joint responsibility for health services that the teachers of clinical medicine have for service in the wards of the hospital in teaching undergraduate physicians.

I believe that the object of Dr. Evans is being accomplished, and can be accomplished further by regulation of existing boards in the states rather than by passing new licensing laws. The board of education of a state can with propriety say that no person shall serve as school medical inspector in the schools unless he or she has certain qualifications, just as boards have decided that nobody shall work as a public health nurse unless she comes up to certain qualifications. I think it is conceivable that there might be federal standards; that federal examinations might be carried out, even under the auspices of the Public Health Service, by which we could have national licensing rather than 48 varieties of licensing legislation similar to that which has handicapped physicians, without relation to their qualifications in moving from state to state.

W. J. V. DEACON, M.D., FELLOW A.P.H.A.

To my mind, the training of statisticians must fall naturally into three groups; the first group commonly referred to over in our section as the "highbrows," are the highly technical mathematicians. While you will read and profit by their stuff as a matter of training, it is, in my opinion, unnecessary. The second group is made up of the health officer and the sanitarian whose training in the fundamental principles of vital statistics will enable him

to evaluate his work; compare it with that of other communities, and more than that, be able to present to his public a comprehensive idea of his accomplishments. He has to be able to pick up the real news story, not the scientific story, but the news story, and put it over to the public, because there is where the public is going to get the information and education by which it is going to evaluate the efforts of the public health department.

I believe that a part of the training of every health officer must be a very liberal education in the general principles of vital statistics. I do not believe that it is necessary for him to have all of the higher mathematics. In my opinion, he is not going to get very far in talking to the city council about constants, correlations or permutations; he has to put his story over in a simple, understandable way, which requires some fundamental training.

Now the third class, as I see it, is the class of vital statistics workers, those people who intend to work as registrars or employes in registration offices. They must understand the principles of public health, or they cannot understand what they are trying to do; also the principles of determining rates and what they mean; the general principles of trends, and the proper classification of the causes of death. To what extent we can hope to put over such a program, I leave for the educator to decide.

C.-E. A. WINSLOW, DR.P.H., FELLOW A.P.H.A.

I think that this has been one of the most fruitful and stimulating hours I ever spent. I think we owe a real debt of gratitude to Professor Turner for having arranged this meeting, and more than ever am I impressed with the complexity of the situation and of the task the committee has undertaken in expanding its job from the study of one kind of training to nine. Such differences as exist between the public health nurse on the one hand, where the demand is extraordinarily larger than the supply and where the principal defects are defects in the system of training, and at the other extreme where there are half a dozen institutions in this country giving the highest type of preparation and not finding anybody to receive it because the jobs are not available, I think you realize how complicated the situation may be. I have very little to add to this discussion except to emphasize the point alluded to by Dr. Emerson. We must not forget that if the public health campaign, as we visualize it today, is to be made effective, we must include, besides the nine types of specialists, the nurses of the country, bedside as well as public health, and the medical profession of the country.

I think we have come to the point, where, in our school, every course from pathology to pediatrics is taught with the preventive viewpoint. The new school of nursing on the university basis has been inaugurated with exactly the same aim, the inclusion of the public health viewpoint in the training of every nurse, whether she is to go into public health work or not. While that is not, I know, the primary object of this committee, it is worth while to remember that if the specific specialists represented here are to attain the maximum of success, they must look to a medical profession and a nursing profession imbued with the general objective we have in mind.

WILLIAM C. WOODWARD, M.D., FELLOW A.P.H.A.

One important subject that it seems to me has escaped attention in the training of our public health officials is law. Your public health officer will operate with a good deal more confidence and command much better the respect of many classes, if he knows exactly where he stands in the matter of legal rights and responsibilities.

That is particularly true when it comes to the matter of quarantine. What liability are you incurring when you order a person held or sent to the hospital? What liability are you incurring when you condemn a carload of fruit or tie up a vessel? What are your rights when it comes to granting a permit to exhume the remains of a man when there is a quarrel within the family?

I want to say something with respect to the remarks of Dr. Evans about licensing. A former President of this Association, Dr. Henry Mitchell, then the secretary of the Board of Health of New Jersey, procured the enactment of a law in that state which requires every health officer who serves in that state in a city or town to have a license. The examinations are of different grades depending on the size of the city or town. It might be worth while to see what the effect of that law has been in the State of New Jersey before going very far with the question of licensing.

PROFESSOR C. E. TURNER, FELLOW A.P.H.A.

The discussion which has developed here tonight has suggested to us in the first place that the various sections have something to con-

tribute from the field viewpoint to those who are undertaking the education of sanitarians; that while there are two problems which are very distinct, the training of the administrator on the one hand and the training of the different kinds of specialists on the other, both are problems which are of real interest to this Association. I had hoped for rather more discussion upon the plans of the committee. The discussion has suggested that we would do well to gather more specific information in both of these two fields than we have been able to secure thus far, and that it may be well to provide an opportunity in this Association for a discussion of the findings of the committee. I should like, if it were possible, to secure an expression of opinion from this group as to whether, in your judgment, it is desirable that the Committee on Public Health Training shall provide a similar meeting next year, in which it may present a report on the subject.

VICTOR C. VAUGHAN, M.D.

All in favor of having a similar meeting will please hold up your hands (unanimous yes vote). The discussion will be continued at the next meeting of the American Public Health Association in St. Louis in October, 1925.

THE BIENNIAL STRUGGLE

The biennial struggle is on again. Many a county court house reverberates with the claims of rival contenders for the position of county health officer. Yards of petitions are unrolled before boards of county commissioners. (Frequently the same names can be found on both the pros and cons.) To-whom-it-may-concern letters, setting forth the professional qualifications of the candidates, rise in piles on the official table. Some of them are a little ancient as to date, while others are new. But all of them certify only to the fact that the applicant is a well qualified physician, painstaking in his care of the sick, and, therefore, fully capable of performing these official duties.

It never seems to occur to anyone that a doctor of the greatest skill may not make a successful health officer; that there is much more to the job than treating the sick; in fact, that this is only a side issue with a real health officer. His primary duty is to *prevent* the illness if it lies within his power and the present attainments of science to do so. His is a specialty as exacting in its demands for expert knowledge as that of the skilled surgeon or specialist. Indeed, it is more so.

Aside from the branches of medicine that have to do with disease prevention, public health administration calls to its aid the arts and science of the engineer, the chemist, the bacteriologist, the dentist, the nurse and the statistician. To know them all is beyond individual human grasp, but to know where and when and how to draw upon them in rounding out a complete preventive program constitutes the equipment of a genuinely qualified health officer. The broader his training and experience, the better qualified he will be to safeguard the public that entrusts its well-being, its very lives, to his keeping.

What difference does it make then whether the health officer belong to one party or another; to one congregation or another? What bearing have these on his ability to locate and eradicate a focus of typhoid fever? Does his social affiliation give him a better understanding of safe sewage disposal? Thoroughgoing knowledge and constant study are his only possible resources for meeting the responsibilities placed on him by the public.

It is this principle that we have been trying to apply impartially in every contest for appointment that comes to us for decision, for we believe that the public has placed a solemn trust in our hands that we cannot lightly regard. If therefore we seem at times to be arbitrary in our rulings, to be unmindful of the wishes of county commissioners in their efforts to reward a friend, it is only because of our zeal to perform our sworn duty to the people whom we serve. If we observe a health officer administering his office to the best of his ability; if we see in him a growing sense of his responsibility and a willingness to fit himself for it, and if we can see no superior ability in his opponent, we favor the retention of the one who has had experience and has demonstrated fitness. Of course, there are at times other considerations that bear upon the question and that cannot be ignored. But in general this policy is applied, regardless of aspersions on our character and intelligence.—*Health Officers' Weekly Bull.* (New Mexico), Feb. 17, 1925.

THE FUTURE TRAINING OF CHILD HYGIENE WORKERS*

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CHILD HEALTH has taken its place among the nation-wide interests of our people, but if this important work is to bring the desired results, we as leaders in this movement must see to it that a large number of thoroughly trained, capable supervisors of child health activities are forthcoming. In fact, trained intelligence is the crying need in all of our public health activities of today. Unless the services of many trained men and women are forthcoming for the direct supervision of our numerous health agencies, both in the preschool and school periods, the present nation-wide movement is fated for retrogression and failure.

Other ages than our own have had their health movements—their waves of interest in the betterment of child health; but those who are working in this important field today and know conditions first-hand do not need statistics to prove that past movements have come and gone without making very much headway. While we, in our present health movement, have the advantage of our constantly increasing knowledge of important sciences, such as physiology, bacteriology, pathology, etc., which were unknown or little known during most of the earlier health activities, and the benefit of the advancements in curative medicine, there is still grave danger that our present health movement may fail to have the far-reaching results anticipated unless we study carefully all phases of our problem and guard against certain human tendencies. It is therefore particularly fitting that we give some consideration in this program to the training of child welfare workers.

EMOTIONAL ATTITUDES TOWARDS HEALTH AND DISEASE

Man's attitude towards his own body, whether in health or in disease, has always lain and still lies almost wholly within the realm of the emotions. With most people, the body, in order and out of order, is something cryptic, recondite, cabalistic.

As far back as we know, man has sought treatment and found havens of cures in the supernatural. Pilgrimages to the shrines of those who were believed to possess the divine gift of healing have been made in every age, even in our own. Pfarrer Gassner, Phineas Quimby, Andrew Jackson Davis, Antoine Mesmer, John Alexander Dowie, Francis Schlatter, are but a few of those who, during the passing century, claimed the divine touch of health, and who had their followers.

The manufacturers and dispensers of patent medicines are thoroughly familiar with this emotional attitude of mankind. They realize fully that a religious, superstitious or sentimental appeal regarding the curative efficacy of their wares will assure more lucrative sales. Our highly civilized and assumedly erudite nation

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now expends annually some $240,000,000 for patent medicines and for self-treatments which are useless if not harmful—more money than is spent for higher education.

Furthermore, this dominating emotional attitude on the part of humanity towards health and health needs demands "something doing" in treatment, such as is represented by the chiropractor who plays knuckle-bones on the vertebræ, the use of bewilderingly complex machines which possess hidden mysteries and produce diffuse aura, flying crackling sparks or paraesthetic vibrations. The pharmacopœia grew thicker than the old family Bible catering to this "do something" demand.

The mind with its hidden mysteries has been and is now regarded by many as the basis for all diseases. What a store of therapeutics has been discovered within the hidden recesses of the brain! "Disease is an error of the mortal mind" is the tenet of an important cult. Well do some of us remember the time when the catholicon for all ill health was thought to lie in hypnotism. Later on the subconscious self was discovered, and in this realm disease sources were sought for and innumerable "cures" found. Freudians would have us dig down by means of psychoanalysis into the subconscious field and release certain inhibitions or repressions—in other words, take the lid off. Coué, on the other hand, would have our conscious selves persuade our unconscious or subconscious selves that "every day, in every way, we are getting better and better." And now our most recent form of mental therapeutics is to leave the subconscious alone—it needs a prolonged rest—and to proceed to cure bodily ailments through an intricate system of conscious control.

The emotional attitude towards health and disease has to no small degree dominated most of our own concerted and presumably intelligent efforts toward health conservation, especially when dealing directly with people.

PAST EFFORTS AT HEALTH CONSERVATION

For many years we have been teaching physiology and hygiene in our public schools. The teaching of these subjects, however, has been relegated as a rule to any one interested. Little if any knowledge relative to the fundamentals of health promotion and disease prevention and control was necessary. It is true that the sciences making up hygiene are, for the most part, of recent acquisition and are still in the process of development, but it is equally true that those to whom the teaching of hygiene was entrusted in the past knew little if anything of these sciences as developed at their time.

On the whole, all past efforts have been marked largely with failure. Among the teachers and supervisors of health activities, as with the laity, the emotional attitude has largely dominated. Among health workers these emotional attitudes have manifested themselves in the form of enthusiasm, empiricism, single track fads and whims. A practice which the teacher felt to be beneficial to herself or to himself was "handed out" to classes and dwelt upon as "scientific" dictum. How easy it is to become the gudgeon of one's own fancies, especially when it comes to health practices. Our past teaching of hygiene has been saturated with empiricism, hobbies and whims. Vegetarians, "dietists," Fletcherites, physical culturists, deep respirationists, and what not, are examples of the fadists who *feel* that perfect health can be achieved and maintained by following their particular single track. Then there were those who dwelt almost wholly on clothing in its relation to health, to the exclusion of all the other approaches. Likewise, bathing, sex hygiene, and so forth were each advocated as the main approach to health. We know that each of these interests must have some attention, that each has its relative value, but we know also that there is no single approach to positive health and physical efficiency.

In addition to these manifestations of the emotional attitude, the big easily

demonstrable activities make a strong appeal and get most attention. Anthropometrical measurements, determining the height and weight of children, playgrounds and play activities, school lunches and athletics will attract the ninety and nine because these are tangible.

Many more important but less demonstrable or spectacular phases of health work, even the real purpose itself sometimes, are neglected or lost sight of. Devices and demonstrable features become the important issues. This fact is largely responsible for much of the friction now going on between various health agencies in many communities.

Let me illustrate by reference to a former important school health movement. In the early years of the nineteenth century, Friedrich Ludwig Jahn and Adolph Spiess in Germany, and Pehr Henrick Ling and his son Hjalmer in Sweden introduced into their respective countries systems of physical exercise and culture which soon met with universal favor and adoption. The objectives of these exercises, according to the founders, were to build up sound, vigorous men and women—the men for military purposes, to be sure. Nevertheless, physical education had its origin and was nourished as a health measure.

The German system was introduced into the United States by Lieber, Beck and Follin. Later on, the Lings' or Swedish system was brought over to our country by Posse, Nissen, Bollin and others. In 1860, Harvard, Yale, and Amherst erected for the first time gymnasia which were dedicated to the physical development of their students. President Sterns, of Amherst, impressed as he was with the "poor and wretched condition of college students," was determined to improve it and to graduate his students with "perfect health."

Through propaganda on the part of the respective devotees, the German system and the Swedish system gained footholds and spread widely in the United States. The question of which was preferable, the heavy apparatus of the Jahn system or the light calesthenics of the Lings' system, absorbed the attention. Many broke away from these practices and devised new ways of doing things. But how one should perform continued to be the all-engrossing problem.

Beginning with the present century there was a more or less general revolt against the formal gymnastics of Germany and Sweden, and with this insurgency, the play movement had its beginnings, which naturally met with almost universal favor. Competitive athletics is an unvarying accompaniment of play, for among the most fundamental of our innate interests are physical competition, rivalry and mastery. Interest and enthusiasm in games and competitive athletics grew and spread rapidly. Thus we see the rise of the play movement and athletics and a rapid deterioration of formal calisthenics and gymnastics.

We see in these past physical education efforts that irresistible emotional tendency which assumes that health may be reached by following a single line of interest and activity. Witness the highly colorful physical culture magazines of our own day that proclaim exercise of one system or another to be all sufficient for the attainment and maintenance of positive health and physical efficiency.

To the ranks of traditional physical educators who believed in "exercise" as the one road to health, there was a large influx of recruits who placed the emphasis on physical prowess and dexterity and physical competition and mastery. Above all they were infatuated with play and its Siamese twin, athletics. Beyond these they had little if any interest, and their sole attention was concentrated upon new methods for physical exercise. They failed to keep up with the new sciences that were being developed and which revealed the fact that there are many complex factors which must be understood and given proper emphasis if our goal is to be the making of physically sound, healthy and vigorous citizens.

In general, our emotional attitudes towards the body, in health or in disease, generate delusions. One of our outstanding delusions is that which proclaims play, which is so often overstimulated, and competitive athletics which are so often overtaxing, as constructive health measures. An example of this widespread and dominating phantasm is seen in the following incident. After the World War, owing to the astoundingly poor showing of our draftees in the physical examinations, when in our first draft one-third failed to pass the physical test, a conference was called in Washington by the Secretary of War, the Secretary of the Navy, the Commissioner of Education, etc., for the purpose of initiating measures whereby the physical regeneration of America would be accomplished. The result was the organization of another national athletic association.

From the very beginning, physical education attracted many enthusiasts who wanted to consecrate their lives to this noble calling. For, after all, what has greater human appeal than the welfare of children? Furthermore, the major activities included in a program of physical education, play and athletics, possessed a potent emotional and instinctive appeal. We all want to play at times, and to indulge ourselves in these fundamental interests of physical competition, rivalry and mastery—but most of us never grow up; never get beyond the play instinct. I dare say that nine-tenths of the conversation among students in our colleges and universities is on matters pertaining to athletics. Witness the almost universal perusal of the sporting pages of our large daily newspapers. It is but natural, then, that our past efforts along child health conservation become dominated by the emotional attitude. Assuredly, emotions outweighed intelligence.

PRESENT CHILD HEALTH MOVEMENTS

Our present school health movement had its beginnings with the incoming of the twentieth century. Boston, Philadelphia, New York and other cities began systems of school inspection with a view of preventing and controlling communicable diseases. In the course of these inspections it was found that school children were the victims of many defects which were retarding and interfering with their progress and which, unless both preventive and remedial measures were applied, would make it difficult indeed for them to make the proper social adjustments later on in life. Furthermore, the school physical examinations revealed the fact that a great many of these defects in school children had their origin during the preschool period. Hence, renewed interest in child hygiene was the outcome. The appalling results of the draft examinations accelerated and intensified our interests in child health conservation.

After twenty years of interest and concerted efforts for child health conservation, we are just beginning to discern some of the essential things, things which must receive adequate attention if our work is to be effective. In light of our past experience and present knowledge, we may outline a constructive child health program as follows:

Our objective is to see that every child is not only given an opportunity but is constrained to grow and to develop normally so that when it reaches maturity it will possess a sound, vigorous and harmoniously developed body.

To reach this objective, one must directly apply to children two major interests and activities, (1) health promotion, and (2) disease prevention. While these two are closely interrelated at certain points of contact, they call for distinct, yet coöperating, interests.

I. The promotion of health.

Normal growth and normal development can be accomplished only by following several approaches or channels. In general, these are: physical examinations, prevention and correction of defects, nutrition, mental hygiene, exercise, rest, air, sunshine, clothing, and shelter. We must ever bear in mind, speaking of health pro-

motion, that there is no single approach to positive health and physical efficiency. The assumption that the sound body can be achieved by following one particular interest has been and is now the besetting sin of the emotional health worker. To understand these various approaches and their relative values for different age periods calls for a prolonged and intensive training on the part of the child welfare worker.

II. The prevention and control of communicable diseases.

This can be effected only through knowledge of the nature and sources of disease, the routes over which they travel, and methods for blocking these routes. There are scientific methods of dealing with the destructive infectious diseases of childhood which so few child health workers comprehend.

In working for child health conservation, we must in the first place know the physically normal child, which is more difficult than to know the abnormal child. Heretofore, it has been our custom to study and to emphasize diseases and pathological conditions without enough knowledge of the normal child. As Lucas has pointed out, " It is comparatively easy to determine that a baby or a child is sick. It is often a most difficult problem to decide that a child is perfectly well and normal." One of our most expert detectors of counterfeit money, when asked why he was so skillful in ferreting out spurious bank notes, said, " I know what genuine, normal, honest money is made of." Child-health workers must have as a background an understanding of normal vital processes. They must be familiar with normal growth and development. The relation of growth to development and of development to growth must be fully appreciated.

To possess a real understanding of normal growth and normal development one must of necessity be trained thoroughly in embryology, including genetics, anatomy, and physiology, both general and applied, with particular reference to growth, development and nutrition. It is necessary to have previous training in biology, chemistry and physics. This training in the normal structure and functions of the body must include a comprehensive study of psychology, for more and more do we regard a well-rounded understanding of personality as part of the necessary equipment of the child welfare worker.

This should be followed by studies of the abnormal vital processes, which are prone to occur in child life. After due consideration of bacteriology and pathology, the application of these sciences to the defects and disease processes of childhood should be thoroughly considered. Let us not overlook the study of psychiatry in this group of studies in the abnormal. Knowledge of what is behind conduct and the possibilities of preventing maladjustment and delinquency is of inestimable value.

When the groups of studies in the normal and the abnormal processes have been completed, then the students may well proceed with the physical examination. They should be able to recognize, in the largest measure, the normal in growth and development, and the abnormal. I do not mean to infer that the training of health workers should or would prepare them for actual treatment of abnormalities.

At this point, the study of hygiene may well be introduced. After the general principles and fundamentals of hygiene, health promotion and disease prevention, have been duly considered, then their special applications to maternity hygiene, to child hygiene and to school hygiene should be made. Of maximum moment is the realization that there are many interests and activities necessary in attaining and maintaining normal growth and development, and that the relative values of these approaches change with the age of the child.

Concurrent with this theoretical and practical training, there must be devel-

oped in the future child health worker a deep appreciation of his limitations so far as special treatment is concerned. He must realize fully that his training essentially makes of him a liaison officer between the child and the highly skilled physician, pediatrician and orthopedist.

Still another group of subjects must be included in the curriculum for health workers, a group dealing with methods and material in health education. Progress in child health work as in all applied hygiene is dependent in a very large measure upon education.

The development of an intensive and impelling appreciation of health and the inculcation of long-lasting and effective health habits, must begin in youth. This is essentially a pedagogical problem. In fact, an unusual opportunity is now being opened to specialists in methods and material in health education. Normal schools and teachers' colleges are beginning to appreciate a distinct need for teaching experts in this line. No one should, however, attempt to specialize in the teaching of health without first having had adequate training in the studies dealing with the fundamentals of health itself. We have experienced a large influx of enthusiasts bent upon "health education" who have not been trained even superficially in the various sciences which are essential as a preparation for effective health work.

Health charts, plays, songs, drills, posters, stories, contests, essays, armies, honor rolls, houses, crowns, and even health clowns, make up the vast bulk of our child health literature and discussions. Daily, new material, new devices and new methods for teaching health to the child are making their appearance. For the most part, this phase of a child health program — health education — has been commendable. We are immeasurably indebted to those far-reaching agencies which have stimulated and are stimulating interest on the part of the teachers for health education. In fact, I am satisfied that it is to these teachers that we owe most for the widespread interest in our present child health programs. Let us have, then, even more methods, materials and devices for teaching health.

Since I have said this much, no one will accuse me of being in any way antagonistic to our present health teaching program when I make the following comments. The rush into health teaching on the part of the vast majority of our health education enthusiasts has been, even in our present movement, dominated largely by instincts and emotions without enough background and training in the fundamentals of health. The play instinct in the broadest sense is the unconscious impelling factor which attracts so many teachers to health education. Practically all of the materials, methods and devices now utilized for health teaching are manifestations of the various phases of the play instinct, *i.e.*, locomotion, vocalization, manipulation, exploration and curiosity, laughter, imitation, self-assertion, competition, rivalry, and emulation.

I recognize fully the inestimable value of the instincts and emotions in teaching. Our modern education is based upon an understanding of and the utilization of the instincts and emotions of the child. Let us appeal to, direct and harness, all instincts and emotions in the child whenever possible for "getting over" our health education program. Trained intelligence, however, must be at the helm, so far as the health teacher or child health worker is concerned.

Our danger lies in the fact that when the play instinct and the emotions dominate, as they usually do, the teacher becomes interested in the materials and methods for teaching health as ends and not as means for teaching. Even the routine weighing and measuring of children has a strong emotional appeal. Devices overshadow purpose! When the instincts and emotions dominate, there is an uncontrollable tendency to follow one single line of activity, the one for which the teacher has a special aptitude. But there is no single approach to health.

I am confident that our numerous child welfare activities in the United States are largely influenced by the emotions and by the play instincts. Whenever we plan a health program for our schools it almost invariably "heads up" in competitive athletics. Even when the man of forty is warned that the degenerative diseases are "getting a throwing hold on him" and that he must change his mode of living, his invariable response is, "Yes, Doctor, I realize fully that I must play more golf." Thus, play in the nature of games, sports and athletics, is regarded by most people as the magic touchstone of health. Yet, we know that it is only one factor of many even more important factors in a scientific, constructive health program.

The ranks of the teachers and supervisors of acclaimed child health activities are made up largely of men and women who have taken up the work because their dominant interest is in play and play instincts. Few people ever get beyond this type of reaction. On the other hand, to think, to do things because they are the intelligent things to do, is difficult. The price one must pay for intelligence is high, almost too much to expect of the common run of people.

But, if our health work is to be successful and far-reaching, it will have to have trained intelligence back of it and in it. The building up of sound bodies, to effect normal growth and development, is a problem for the trained intellect.

Utilize the instincts and emotions wherever and whenever they can be utilized for the purpose of getting the program over; but the teaching and supervising must be done by those who have had years of serious training in the sciences which deal with the fundamentals of health. Few there are who are willing to pay the price of this long, difficult, painstaking training. How much easier it is to weigh, to design pictures and posters, to sing, to act, to play, to do concrete, tangible things that can be seen. Where real child health supervision is the goal of the one, emotional child health supervision is the destination of the ninety and nine.

To sum up briefly what I have tried to say, the emotional attitude toward health and disease dominates most of mankind today. We have not escaped it in our child welfare movements of the past or present. I do not want in any way to throw a wet blanket on the enthusiasm for and present efforts directed towards health education. Let us foster and utilize each and every effective device for teaching health. At the same time, let us become more and more interested in and give more attention to the basic structure of child health work. Let us place it on an intelligent and scientific basis. Otherwise, notwithstanding our age of greater enlightenment, our child welfare endeavors will not be far-reaching and will share the fate of all emotional health movements of the past.

SANITARY ENGINEERING AS A CAREER*

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SANITARY engineering is a late development in the curricula of technical institutions. Like all other aspects of learning, engineering has gone through a process of evolution and differentiation. It is the function of colleges to adjust their curricula to the changing conditions of social life. The measure of college efficiency and educational effectiveness depends upon the accuracy with which our institutions of learning make the adjustment demanded by social changes. Provision for courses in sanitary engineering and the training of the sanitary engineer is a good illustration, both of the evolution of technical curricula in our colleges and the adaptability of our institutions to the needs of social life.

Refinement of technique and specialization in the field of engineering have been going on for more than a hundred years. Civil engineering, for example, in 1824 was a vastly different thing from civil engineering of the present day. With the growth of industrial society, the development of our cities, the astonishing products of inventive genius, the discoveries in the field of natural science, and the application of these discoveries in almost every field of human endeavor, have given a new meaning to engineering. Civil, mechanical, electrical, mining, and chemical engineers of today are, first of all, scientists. They are men who have based their special technical training upon the broad foundation of scientific fact. The broad training has given them great versatility and adaptability in the specialized fields in which they operate.

It is not surprising, therefore, that before there emerged such a thing as a sanitary engineer, the other types of professional engineers were extending their influence in new directions in response to public demand. But the activities of these men in their new fields produced two effects. In the first place, in the exercise of their duties they realized the inadequacy of their training for these new enterprises. In the second place, the public slowly became aware that the differentiations in society, brought about by highly industrialized organization, created a demand for types of engineers differing essentially in preparation and objectives from the engineer of the other types. Out of that situation have developed such new conceptions as industrial engineering, commercial engineering, and sanitary engineering. Perhaps the latest of all these conceptions is that of the commercial engineer. Joseph W. Roe, Professor of Engineering in the College of Engineering of New York University, discusses the need for commercial engineers as follows:

> The problems of community or city management are such as a commercial engineer can best solve. He should be able to coördinate efficiently all broadly economic factors of the modern city, in itself a gigantic engineering project, a colossal industrial enterprise. The commercial engineer has an even greater opportunity which potentially presents itself in every county throughout the United States. The scientific conduct of the nation's business is impossible without full knowledge of the sources of materials, manufacturing centers, and consuming markets, the relations of these to labor, credit supply, and transportation facilities. To secure and make that information understandingly available for our business men, we must begin with our smallest

* Read before the Texas Association of Sanitarians, Houston, Texas, November 5, 1924.

economic unit, the county. Rural communities must be changed scientifically into industrial units; industrial units must be similarly guided on their way to a more rapid return to truck or farming communities. Economic community guidance is imperative in view of world-trade competition. Many communities today are supporting industries that are by their location a liability to a community and a greater one to the nation. Counsel and guidance of commercially trained engineers in every county will aid these counties to solve their problems relating to unwise employment and care of labor, seasonal and rotary; wrong standards of living, therefore, uneconomic; improper transportation outlets; standards and kinds of production; marketing opportunities; available credits; and above all to solve problems relating to housing and health, to the proper balance between the individual's duties to society and his own economic rights.

It must be quite obvious that the work of the sanitary engineer supplements the work assigned by Professor Roe to the commercial engineer. The objectives of the two professions grow out of the problems and the needs of community life. I would assume that the basic courses for the two professions would not be essentially different, but the differentiated objectives of the commercial engineer and the sanitary engineer clearly indicate that in technique they are vastly different and should require a carefully thought out, differentiated course of instruction.

OBJECTIVES IN SANITARY ENGINEERING

Until very recently the objectives of sanitary engineering have not been very clearly defined. But experience and the demands of industrial life have slowly brought about an interesting consensus of opinion with reference to the kind of training that a sanitary engineer needs to fulfill the demands of industrial society. It will be of particular interest to recall here a paragraph from a recent catalogue of Columbia University in which the scope and the field of usefulness of the sanitary engineer are indicated:

> The sanitary engineer must not only be able to design and construct water purification plants and sewage disposal systems, but he must understand the chemical and biological processes upon which the successful operation of these plants is based. He must not only be able to construct such engineering features as will prevent epidemics and further the health and comfort of individuals and communities, but he must have a knowledge of bacteriology, sanitary statistics, and the sources and modes of infection.
>
> While mathematics, mechanics, and physics are the theoretical basis for the work of the civil engineer in design, construction, and management, the sanitary engineer adds to these the collateral sciences of chemistry and biology.

It will be observed that the training as indicated in this quotation considerably extends the technical knowledge required for the sanitary engineer beyond the general conception that the public has with reference to the knowledge required for this profession.

Professor Charles Gilman Hyde, of the University of California, has presented some interesting information (shown on page 511) with reference to the fundamental and specialized training of the sanitary engineer and the field of activity open to a man who possesses this training.

An increasing number of institutions are now providing courses of instruction in sanitary engineering. The institutions that have led the way and that have accomplished most in this training include Columbia University, Harvard University, Massachusetts Institute of Technology, Pennsylvania State College, the State University of Iowa, the University of California, the University of Illinois, the University of Michigan, and the Carnegie Institute of Technology. Immediately preceding the World War, the number of sanitary engineering graduates in American colleges increased steadily. The number rapidly declined immediately after 1918. Since the close of the war the number has gradually increased again. There were thirty-seven sanitary engineers who were graduated from American colleges in 1924 as compared to sixty-nine in 1917.

FUNDAMENTAL TRAINING	SPECIALIZED TRAINING	SANITARY ENGINEERS BECOME
Bacteriology	Waterworks and water treatment and purification	City managers
Biology	Sewerage and sewage and industrial wastes; treatment and disposal	City engineers
Chemistry	Roads and pavements	Highway engineers
Geology	Structural design	Health officers and public health administrators
Hydraulics	Public health and the control of the environment	Superintendents of water and sewage treatment works
Hygiene	Wastes collection and disposal	Operators of industrial wastes plants
Mathematics		Engineers in the United States Public Health Service
Mechanics		Engineers in state, district, and city sanitary engineering departments
Physics		Designing, supervising, and consulting engineers on all manner of hydraulic, municipal, and sanitary problems
Structural theory		

The sanitary engineering courses in the majority of the colleges include the following group subjects: (1) cultural—economics, English, languages; (2) science—chemistry, physics, biology, geology; (3) allied engineering—drawing, electrical engineering, hydraulics, strength of materials, mechanics, railway engineering, roads and pavement, surveying; (4) sanitary engineering—municipal sanitation, sanitary laboratory, sewerage and sewage disposal, water works and water purification; (5) public health; (6) miscellaneous—physical training. In most institutions sanitary engineering is essentially a differentiated form of civil engineering, and is most closely related to this engineering course.

The degrees conferred upon graduates from sanitary engineering courses are: B.S. in Civil Engineering, B.S. in Sanitary Engineering, M.S. in Sanitary Engineering, Bachelor of Engineering, or C.E. The courses are generally four years in length, although in one institution five years are required to complete the course, and in still another institution six years are required. The course is generally designated in the catalogue as "Sanitary Engineering," although in four colleges the course is listed as "Sanitary and Municipal Engineering."

CONCLUSION

The number of technical institutions that will provide courses in sanitary engineering is certain to increase in the future. It is equally certain that the popularity of these courses will increase. There are in the United States 1,500 cities of over 5,000 inhabitants, and 2,800 cities of over 2,500 inhabitants. An increasing number of these cities and towns are being operated under the city management plan. The public is demanding that city managers possess some technical qualifications with reference to sanitary engineering. In the larger cities where city engineers are employed it is becoming an increasing practice to employ only engineers who have had technical courses in municipal sanitation, sewerage and sewage disposal and water purification. This tendency throughout the country is certain to increase greatly the demand for well trained sanitary engineers.

To preserve and promote the health of the community; to increase human happiness and comfort; to render that essential service to every citizen that relieves his mind of anxiety, and to safeguard his body against physical pain, are the high purposes of the sanitary engineer. A profession with such high purposes should challenge the interests and appeal to the young men of the highest talents and the best aptitudes.

Sanitary engineering in the future will be recognized as one of the essential professions. In popular esteem, in dignity and importance, it will occupy a place second to no other profession. Our technical institutions of higher learning have no higher mission than to provide adequate courses in this subject and to encourage well qualified students with natural aptitudes to prepare for this important profession.

STANDARDS FOR THE TEACHING OF VITAL STATISTICS*

YOUR COMMITTEE has limited its consideration and its report at this time to standards for the teaching of vital statistics to undergraduates in medical schools.

Your committee sent questionnaires to all of the Class "A" medical schools in the United States and Canada to ascertain whether instruction was given to undergraduates on the subject of vital statistics, and if so, what part of the subject was covered, whether it was required or elective, how many hours were devoted to the course and how the instruction was given that is, whether by lecture, textbook with recitation, or classroom work, and whether examinations were held.

The replies to the questionnaires would seem to indicate that most of the schools include the subject of vital statistics in their medical courses. However, if one may judge from the nature of the replies received, it would appear that many of the schools include the subject in their courses for the sake of appearances, or, shall it be said, for purposes of the catalogue.

In a large number of the schools it was quite clear that no serious attempt was made to give instruction in the subject. In others, the needs have been considered as met by having one or more, usually one to six, lectures given.

It seems proper for us to consider the subject, first, as to what parts and how much of the subject should be included in medical undergraduate courses, and second, the best manner of presenting the subject to the undergraduate.

The curricula of medical schools are, as is well known, very much crowded at the present time. There is a constant pressure from within and without medical faculties for the subdivision of existing subjects in the curricula and the inclusion of additional ones. This is true to so great an extent that medical faculties are able only with the greatest difficulty to include all the subjects which it is commonly considered should be included in medical courses. Under existing conditions, it would seem to be an offense against good judgment to include any subject which is not essential or any more of a subject than is essential.

It is proper at this point, therefore, to consider how much of the subject of vital statistics the practicing physician should know.

The practicing physician is specified because the purpose of medical courses and of medical schools, in so far as undergraduate work is concerned, is the fitting of men for the practice of medicine and surgery. Anything which does not bear upon the preparation of the undergraduate for the practice of medicine and surgery, it would seem, should not be included in the regular course.

How much of the subject of vital statistics does the practicing physician need to know or how much does he need to know to be a good practicing physician and to fulfill his obligations to the community? His needs are distinctly different from those of the health officer. The health officer must be somewhat of a specialist in vital statistics. At least, he should have a much more profound knowledge of the subject than should the practicing physician. However, the train-

* Report of the Committee presented to the Vital Statistics Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 20, 1924.

ing of health officers is a thing which must usually come either in practical experience or in the schools of public health.

It is certainly true that the physician should be familiar with that part of the subject of vital statistics which he will need to know in the practice of medicine. This much is fundamental. If he wishes to be one who has acquired more than the mere essentials, if he wishes to be one who is in a measure "learned" in the things relating to his profession, he will need to know enough of the subject so that he can understand the frequent references in current literature to mortality, morbidity and birth rates—what they are, how they are derived, the errors to which they are subject, and their significance. The practicing physician is required by law to make out death and birth certificates and to report cases of notifiable diseases. He should understand the methods and purpose of registration. He should know very clearly why the state requires him to register births and deaths and cases of certain diseases.

Your committee, therefore, believes that a proper medical course should give adequate instruction in:

1. The fundamentals of population statistics, including the significance of census enumerations and population estimates.

2. The fundamentals of birth statistics, including methods and purposes of registration, methods and purposes of compilation and tabulation, significance of rates, factors influencing them, sources of error in compilation of birth statistics and uses of birth registration and birth statistics.

3. The fundamentals of morbidity statistics, including the purpose and method of notification, the significance of morbidity rates and factors which influence them, source of statistical data, dependability of existing data, and the relationship of the municipal, state and federal governments in the collection of data.

4. The fundamentals of mortality statistics, the purpose and method of registration, the compilation of mortality statistical data, the relationship of municipal, state and federal governments in the compilation of data, the errors which enter into the compilation of mortality statistics, the meaning of the Registration Area for deaths and the meaning of the various rates, crude, specific and standardized.

This much the educated physician needs to know. Your committee wishes to emphasize the need for attempting to present to the undergraduates the fundamentals of population, death, sickness and birth statistics; also the need for using intelligently and to advantage the few hours which can be allotted to this subject in medical courses. It wishes to suggest that merely giving a limited number of lectures, unless supplemented by class work, often does not mean giving adequate instruction; certainly this has been so in many instances under the present methods of presenting vital statistics to undergraduate medical students.

JOHN W. TRASK, *Chairman*,
STEWART G. THOMPSON,
STUART T. FRIANT.

STANDARDIZING QUALIFICATIONS FOR PUBLIC HEALTH NURSING POSITIONS*

IT IS generally conceded that hospital training is not a sufficient preparation for the public health field. The Winslow-Goldmark report, published after three years of careful study of nursing education in its application to the public health field, recommends a full academic year of postgraduate study, following at least two years and four months of hospital training.

The Winslow report, included in "The Report of the Committee on Municipal Health Department Practice" of this Association (A.P.H.A.), published by the Government Printing Office in July, 1923, states: "There are three common ways of training public health nurses. These are: (1) A school of public health nursing, which is usually associated with some university, (2) hospital training schools which give their student nurses short field training under the direction of local health departments or visiting nurse associations, (3) nursing organizations which give new nurses a few lectures by members of the staff and when possible send these new nurses into the field for a few weeks with the older nurses."

It is a regrettable fact that very few schools of nursing have required more than two years of high school for admission,** and some less. Thus we have thousands of nurses, graduate and in training, who could not qualify for university work.

The number of nurses who receive an introduction to the public health field while still in training is very small.

The preparation of the public health nurse, by means of educative supervision, implies that the organizations employing nurses have highly qualified directors and field supervisors.

With the rapid expansion of the public health field, the demand for nurses has far exceeded the number of well qualified workers, and we must accept the responsibility for formulating minimum, as well as desirable, standards for the nurse in the public health field.

At the request of the Conference of State and Provincial Health Authorities of North America, a small committee, including two representatives each from the National Organization for Public Health Nursing, the Nursing Section of the American Public Health Association, and the Conference of State and Provincial Health Authorities of North America, was appointed to formulate standards for positions in public health nursing.

The committee was asked to consider standards applicable now (1925) and those that might be enforced five years hence (1930) and to consider:

1. The nurse on a well supervised staff.
2. The nurse working alone, or without the daily supervision of a qualified nurse.

This committee has considered the various ramifications in the problem of nurse education (the low standard of admission to nursing schools, the comparatively small number of nurses who can qualify for university work, the small number who receive an introduction to

* Report of the Committee to Formulate Standards for Positions in Public Health Nursing presented to the Public Health Nursing Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 20, 1924.

** In 1924 there are 1,744 schools of nursing and 50,897 students registered in these schools. Of these 1,744 schools, 217, or 11 per cent, state that they require high school graduation for admission. In these 217 schools, there are 11,194 students, or 22 per cent of the total number of students. Many schools requiring less than high school graduation have many high school graduates (as Bellevue, New York City). Roughly estimated, therefore, there are at least 15,649, or 30 per cent of students now in training, who are high school graduates.

the public health field while in training, the number of visiting nurse organizations prepared to give well supervised experience), and submit these recommendations:

QUALIFICATIONS FOR THOSE APPOINTED TO POSITIONS IN PUBLIC HEALTH NURSING

I. For the Nurse on a Staff Providing Well Qualified Nurse Supervision

1. *Minimum Qualifications for 1925.*

a. For nurses graduating from schools of nursing since 1920.

(1) At least two years of high school education.

(2) Fundamental nursing education—namely: Graduation from a training school for nurses connected with a general hospital having a daily average of 30 patients or more and a continuous training in the hospital of not less than two years. Training shall include practical experience in caring for men, women and children, together with the theoretical and practical instruction in medical, surgical, obstetrical and pediatric nursing. Training may be secured in one or more hospitals.

(3) Registration under some state nurse practice law.

b. For nurses graduating from schools of nursing before 1920.

(1) No academic qualification stated.

(2) Professional training or experience which has developed a wisdom and judgment which is valuable in the public health nursing field in spite of lack of formal academic education.

(3) See 1, a(2).

(4) Registration under some state nurse practice law.

2. *Desirable Qualifications for 1925, to become the Minimum Qualification as soon as possible, at the latest by 1927.*

a. For nurses graduating from schools of nursing since 1920.

(1) High school graduation or its educational equivalent.

(2) See 1, a(2).

(3) In addition to the services required in the fundamental technical education (obstetric, pediatric, medical and surgical nursing), theoretical instruction and practical experience in one or more of the following services:

Public health nursing.
Communicable disease nursing.
Tuberculosis nursing.
Hospital social service.
Mental hygiene.

(These services may be given in the school, or taken as postgraduate work.)

(4) State registration in the state in which the nurse is to be employed.

b. For nurses graduating from schools of nursing before 1920.

(1) No academic qualifications stated.

(2) Professional training or experience which has developed a wisdom and judgment which is valuable in the public health nursing field in spite of the lack of formal academic education.

(3) See 1, a(2).

(4) In addition to the services required in the fundamental technical education (obstetric, pediatric, medical and surgical nursing), theoretical instruction and practical experience in one or more of the following services:

Public health nursing.
Communicable disease nursing.
Tuberculosis nursing.
Hospital social service.
Mental hygiene.

(5) State registration in the state in which the nurse is to be employed.

II. For the Nurse Working Alone, i.e., without daily qualified nurse supervision.

1. *Minimum Qualifications for 1925.*

a. For nurses graduating from schools of nursing since 1920.

(1) At least two years of high school.

(2) See 1, a(2).

(3) Four months of instruction under one of the recognized public health nursing courses, or four months organized instruction for the special field, or one year's experience on the staff of a public health nursing organization giving daily qualified nurse supervision.

(4) Registration under some state nurse practice law.

b. For nurses graduating from schools of nursing before 1920.

(1) No academic qualifications stated.

(2) Professional training or experience which has developed a wisdom and judgment which is valuable to the public health

nursing field in spite of the lack of formal academic education.

(3) See 1, a(2).

(4) Four months of instruction under one of the recognized public health nursing courses, or four months organized instruction for the special field, or one year's experience on the staff of a public health nursing organization giving daily qualified nurse supervision.

(5) Registration under some state nurse practice law.

2. *Desirable Qualifications for 1925 which should become the minimum qualifications as soon as possible, at the latest by 1927.*

a. For nurses graduating from schools of nursing since 1920.

(1) At least high school graduation or educational equivalent.

(2) See 1, a(2).

(3) In addition to the services required in the fundamental technical education (obstetric, pediatric, medical and surgical nursing), theoretical instruction and practical experience in one or more of the following services:

Public health nursing.
Communicable disease nursing.
Tuberculosis nursing.
Hospital social service.
Mental hygiene.

(4) Four months of instruction under one of the recognized public health nursing courses and one year's experience, or an eight months' course in public health nursing and six months' experience.

(5) State registration in the state in which the nurse is to be employed.

b. For nurses graduating from schools of nursing before 1920.

(1) No academic qualifications stated.

(2) Professional training or experience which has developed a wisdom and judgment which is valuable in the public health nursing field in spite of the lack of formal academic education.

(3) See 1, a(2).

(4) In addition to the present requirements in fundamental technical education (obstetric, pediatric, medical and surgical nursing), theoretical instruction and practical experience in one or more of the following services:

Public health nursing.
Communicable disease nursing.
Tuberculosis nursing.
Hospital social service.
Mental hygiene.

(5) Four months of instruction under one of the recognized public health nursing courses and one year's experience, or an eight months' course in public health nursing and six months' experience.

(6) State registration in the state in which the nurse is to be employed.

Special Personal Qualifications. These are desirable for all public health nurses: adaptability, tact, patience, tolerance, courtesy, a spirit of coöperation, and an open mind.

This report is submitted with the committee's recommendation that further study be made of the qualifications for nurse directors and supervisors, and for continued revision of these qualifications from year to year.

It is further recommended that a committee be appointed to consider standards for directors and supervisions in municipal health departments, based upon a study of the report on the qualifications of superintendents and directors in 69 public health nursing organizations, made by the Provisional Section on Public Health Nursing of the A.P.H.A.

MABELLE S. WELSH, R.N., *Chairman*
GERTRUDE HODGMAN, R.N.
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ACADEMIC EDUCATION AND PUBLIC HEALTH NURSING TRAINING

DISCUSSION BY GERTRUDE HODGMAN, R.N.

THE question of standardizing qualifications for public health nursing positions is a practical one based upon conditions of demand and supply. It is important for us therefore to rationalize as far as possible the future demand in order that we may direct the preparation of the future supply.

In considering the question of academic preparation for public health nursing positions, we must consider facts of present supply. The desirable goal is agreed to be completion of a high school course or its equivalent.

While it is true that some of the 217 schools stating that they require high school graduation or its equivalent for admission do not uphold this standard rigidly, it is also true that many more schools who state that they require only one or two years of high school, have a large proportion of high school graduates at the present time. This is, for instance, the case at Bellevue School, where the printed statements says one year of high school, according to the New York State minimum law, but where there are many students high school graduates or more.

It should be possible for us to bring up the standards of public health nursing positions to full high school requirements fairly soon. (Not retroactive for those already in the work.) Such a standard for positions, if generally agreed upon and announced, will serve as a stimulus to nursing school requirements.

The question of public health nursing training includes both consideration of postgraduate courses and changes in the present undergraduate nursing curriculum. Up to the present time the greatest emphasis has been put upon the development and standardization of satisfactory postgraduate courses. The Education Committee of the N.O.P.H.N. has served as this standardizing group.

At present there are 12 courses included in our lists and graded A or B. These are all connected with colleges or universities and directed by a full-time public health nurse. None of these courses gives a certificate for less than an academic year's work. The requirements for admission are usually graduation from a high school and graduation from an approved school of nursing.

Rating of courses is based on a study of admission requirements, position of the course in the university, budget, credits, number of students, technical courses available, correlation between theory and practice; theoretical and practical work.

In attempting such a standardization of postgraduate courses it has been accepted that education in nursing is the necessary prerequisite foundation for this type of public health work.

It is possible and desirable at the present time however, to improve the fundamental education of nurses along the lines of the needs in the public health field. This means the inclusion of certain courses and experiences that have a more direct bearing upon public health nursing, as for instance, experience in various types of clinics, well-baby stations, etc., as well as opportunity for affiliation with public health nursing associations. Although such affiliations for nursing schools have not been developed to any great extent, I believe we are safe in saying that satisfactory programs can be arranged through the coöperation and interest of all local organizations doing public health nursing work, as well as with the assistance of local educational institutions which can provide the theoretical instruction. It has been shown in several instances that these affiliations can be included in the nursing curriculum, even in the shortened 28 months' nursing courses. These and other changes in the nursing curriculum directed toward the needs in the public health field should provide better equipped nurses for the less responsible positions in public health, as well as a better foundation for later postgraduate work.

SUMMARY

Any standards of academic education in public health nursing training depend largely upon the maintenance and requirements for appointments to positions. Requirements which put a premium on improved academic education and special public health nursing therefore will serve to stimulate and produce a supply of those so qualified.

EDUCATIONAL AND PROFESSIONAL STANDARDS FOR VITAL STATISTICIANS*

SINCE THE presentation of their last report ** the members of your committee have been earnestly at work, coöperating with the committees of other societies whose efforts are being similarly directed toward the solution of what is tactically one of the most difficult problems in professional education today. The statistician is being accepted more and more as advisor, counselor and critic in business, medicine, public health, insurance and in social work. Two members of your committee, Mr. Sydenstricker and Dr. Eichel, have had opportunity to meet European statisticians during the past two years and have obtained in that way a fund of information regarding the aims and purposes of statistics, especially vital statistics, which the Chairman hopes will be classified and digested for your information. Dr. Eichel said:

> "For a long time I have had misgivings about the wisdom of attempting to promote the practice of statistics as an independent profession . . . especially since I have been over here (Geneva) and in constant personal touch with eminent statisticians of various European countries. I have become impressed with the fact that statistics is very much more a *method* useful and necessary in many different professions and scientific pursuits than it is an independent science or branch of applied mathematics. . . . I wonder if the statistician, so-called, must not always be primarily and chiefly an expert in the particular science to the problems of which he brings the statistical method for solution. In this case (vital statistics), of course, the emphasis would have to be placed upon the type of statistical training necessary for research in the different fields of science."

Here, Dr. Eichel makes the point which the committee stressed two years ago, namely, that the vital statistician should be first of all qualified in public health principles, that his technical methods, which are in the last analysis the working-tools of quantitative logic, should be adequate to qualify him as public health analyst and counselor. The committee finds endorsement for Dr. Eichel's view in every contact it has had in recent years. Its congenial relationship with Professor Glover's committee in the American Statistical Association also suggests that any statistical practitioner ought to be qualified in the major field in which he works, and that his technical specialty is but an aid to the upward and onward advancement of the broader professional group with which he is associated. Your committee has been continually in contact with the other societies whose aim it is to outline what constitutes statistical method, how, where and under what auspices it should be taught. When definite conclusions have been reached by these several committees the results will be placed before you. The task is difficult and several years will elapse before a cautious, helpful statement can be made.

TEXTS ON STATISTICS FOR OUR MEMBERS

It is possible that before very long a number of suitable texts will become available for the use of statistical stu-

* Report of the Committee presented to the Vital Statistics Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 20, 1924.

** *A. J. P. H.*, Dec., 1922, p. 1028.

dents in the several service fields. The technical concepts of statistics apply to any field which deals with mankind in the mass, in the same way that the principles and methods of microscopy apply to pathology, geology, industrial technology or in the public health laboratory. The microscope is an instrument, a tool, and each year countless students in many different fields are taught to use it. And so, with statistical methods: the most rudimentary principles of designing records of individual events, the processes of classification, tabulation and elementary and advanced analysis, constitute a structure, the sole purpose of which is to enhance thinking about the things or events with which mankind must deal in the aggregate. Furthermore, these methods aid in the economy, clearness, force and accuracy of expression. As the histologist, pathologist or bacteriologist is taught to use his microscope, so the counselor to the public health executive and to the statesman must learn to use the methods of observing and reflecting upon the massed facts of health and disease, birth, marriage and death.

REGISTRATION, TABULATION AND PUBLIC HEALTH COUNSEL

In public health work we meet two groups of specialists in vital statistics: (1) the registrar who secures, classifies, tabulates and publishes *descriptive* data; (2) the analyst and counselor who uses the registrar's results and recommends courses of action, or choices of action, for the public health executive. It seems unreasonable to expect the registrar to attain full competence in the analytical or advisory phase of vital statistics until such time as budgetary provision can be made by states and municipalities for providing the necessary subordinate officials to whom can be entrusted the labors of registration, classification, filing and tabulation. It has taken three hundred years in this country to secure satisfactory registration of vital facts for more than 80 per cent of the American population. The approach to the completion of this task justifies us in considering the future of the vital statistician, freed of most of his present burden of registration and office routine.

THE VITAL STATISTICIAN'S FIELD OF SERVICE IN THE NEAR FUTURE

Your committee sees the development of several important, but at present neglected, fields of productive inquiry.

First, there is the whole subject of public health climatology with its contacts in physiology, clinical medicine, public health entomology and economic geography. Vital statisticians fifty years ago began inquiries in this field which are today models of method. Will the next decade offer opportunities to the public health statistician for evaluating the climatic factors in the prolongation of life? That will depend, in America, upon the vision of the men who now are deluged with registration and tabulation problems, but who will work to free themselves sufficiently to undertake these productive researches.

Second, there is descriptive and analytical epidemiology. With data sources improving each year, it remains for our Section to say what it will do with the data now buried in published reports, to the end that more may be known about the mass behavior of communicable disease, and that dependable general principles of epidemic management may become available.

Third, is the problem of the logic of large-scale public health demonstration. What methods shall be employed with the excellent data now available to establish bench-marks for such work and to determine its value?

Fourth, there is the problem of the development of an adequate and valid method of evaluating the results of established public health enterprise; this method to be used chiefly by public health administrators in analyzing their problems. Here we have the complex statistical theory of schedule or merit rating,

the principles governing the choice and weighting of public health facts, their inclusion in the rating schedule, etc.

Fifth, it is suggested that vital statisticians now in service would welcome facilities for correspondence study in vital statistics analysis and in public health logic. Perhaps, schools of public health would care to consider establishing such courses.

Your committee submits that the future of the Section is brighter now than at any time in the past and that fundamental contributions to public health administration can be made, *if* the Section will wisely extend its activities beyond the nurturing of registration, classification and tabulation. Our aim should be to make future vital statisticians responsible counselors and advisors to their executives, and to ease the present burden of registration and tabulation technique. That will depend upon the initiative, vision and scholarship of the Section's officers.

E. W. KOPF, *Chairman*,
OTTO R. EICHEL,
RAYMOND PEARL,
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THE TEACHING OF HYGIENE

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THERE ARE a great number of terms in the layman's vocabulary, which call to the mind of those without a medical education, a condition or state which frequently has an exact equivalent in medical parlance. In the teaching of preventive medicine, public health or hygiene (as certain courses conducted by the writer have been variously called), common terms and accepted ideas have been used as the starting points in many of the lectures, and thus the attempt has been made to go from the known to the unknown. For the most part this has proved to be an effective method. To illustrate this with an example: in discussing antagonism and symbiosis among the bacteria, the writer has started with the popular idea that it is "healthy" to drink buttermilk, and has developed the theoretical basis which prompted Metchnikoff to popularize the idea. Again, the term "resistance" to a disease has a rather concrete meaning to the lay mind and when the statement is made that resistance is practically equivalent to the technical term immunity, a rather definite conception of the latter word is immediately in the mind of the student.

Many of the students have had more or less training in mathematics (many of the classes have been composed of undergraduate engineers), and the use of formulæ where possible have been of advantage; thus:

$$\text{Resistance} = \text{Immunity} = \frac{1}{\text{Susceptibility}}$$

One of the most important basic conceptions for the communicable diseases is the statement that whether the person develops the infection or not is directly proportional to the number of organisms introduced at the initial infection; and also directly proportional to the virulence of the strain in question, while it is inversely proportional to the resistance of the person. This can be represented by the formula originally proposed by Dr. Theobald Smith: $D = \frac{mnv}{r}$. Where "D" is interpreted as the positive or negative production of the disease condition, "m" the specific character of the microorganism involved, "n" equals the num-

ber of infecting organisms; "v" equals the virulence of the strain and "r" equals the resistance of the host. Occasion is taken to point out that this formula is theoretical and that "m," "n," "v" and "r" are usually all indeterminable and hence the value of "D" (*i.e.*, whether plus or minus) cannot be determined. It serves its purpose as a teaching help in that it gives the mathematically trained or inclined student a conception of conditions which he would not otherwise as quickly grasp. He realizes at once that he is not dealing with a single variable but with several of them, and when he gets this point of view he can satisfactorily explain to himself a great many problems which heretofore baffled him; as for example, why his brother contracted diphtheria and he escaped, though both apparently had the same opportunity for infection. That a small number of organisms, or organisms of lowered virulence, may in many instances not only fail to produce the disease in question but may actually result in an immunity to that specific infection, in that the body through this means has become "educated" to the handling of the invader, is not hard to make clear.

That "m," "n," "v" and "r" vary with every infection is pointed out—that in many diseases to which the human is heir "r" is practically zero, and we know at present of no positive methods whereby we may increase its value in these cases, is definitely stated. It is shown that "r" is the result of a number of interacting factors, such as proper elimination, housing conditions, ventilation, sufficient sleep, posture, exercise, food, etc. By this means the student gets some idea of the relative importance of many subjects which are considered to be topics for this field of discussion and he realizes that ventilation, exercise, food values and the like are of secondary, tertiary or even less magnitude as compared with direct infection, droplet infection, infection through water, milk and so on.

It has been the writer's experience that it makes little difference whether the class is composed of college freshmen or upper classmen—most of them have no proper biological foundation and this has to be developed—and their advanced training along other lines does not seem to allow them to grasp these facts more rapidly than first year students—they are freshmen in hygiene. Would not some of the methods which have been found of value in teaching hygiene to students find application in presenting to the laity some of those subjects which public health workers have been struggling to call attention to in the past?

SOCIOLOGICAL PREREQUISITES FOR A PUBLIC HEALTH CURRICULUM

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THE CONCLUSIONS in this paper are based upon four years and a half of work in public health education (social hygiene), part of which was under the United States Public Health Service; and upon several years' teaching of courses in "Social Aspects of Public Health" at Northwestern University and in applied sociology at the Presbyterian Hospital School for Nurses at Chicago. The opinions of the writer have been checked and supplemented by those of well known writers and active workers in certain fields.

The obvious points of contact between sociology and the job of the public health worker are many, but they may be thus grouped:

1. The social effects of disease are the chief stimulus to public health efforts. If disease affected only the immediate victim, individualistic medicine would be adequate. But it may be communicable; it may break down the standard of living or undermine family integrity; it robs society of product; its miseries arouse commiseration.

Applied sociology includes such facts, and gives technique for their analysis and appreciation, in the case or in the mass.

2. The causes of disease include many which are not biological, not individualistic, but social in origin. Thorough diagnosis includes these social causes. The several branches of public hygiene, especially for example epidemiology, are obviously social arts and sciences.

A knowledge of social organization, as well as of economic organization, is needful for appreciation of social causation. All three are essential guides to remedial and preventive measures, whether in case work (hospital social service, public health nursing, etc.) or in mass work (propaganda, legislation, administration).

In his recent book,[1] H. H. Moore says:

> The modern sanitarian sees that poverty as well as ignorance is a contributing cause of infant mortality, that overwork and fatigue appear to enhance susceptibility to some infections. In addition, there are specific diseases affecting only the workers in certain industries. . . . It is becoming increasingly evident . . . that the sanitarian of the future must take into consideration the economic and social causes of disease and cooperate with those whose chief concern is the elimination of adverse social and economic conditions.
>
> The curricula of the institutions offering graduate courses in public health are superior to those of medical schools for the training of sanitarians. In some of them, however, insufficient attention is given to psychology, sociology, and statistics. If the suggestions of Barker, Pearl and others are acted upon, greater emphasis will be placed on these subjects than at present.*

3. Whatever the causes of disease, their cure, and prevention, for the individuals or in society at large, depend in large part upon social factors and social efforts.

Applied sociology includes not only the effects of social pathology in producing physical breakdown, but the effects of normal and remedial social agencies in producing and maintaining high health.

* Barker, L. F. The Future of Medicine in America. Pearl, Raymond. The Statistical Evaluation of Public Health Activities. *A. J. P. H.*, Vol. XII, No. 11 (Nov., 1922), pp. 915–921.
Welch, S. W. Training in Sociology and Public Health. *Jour. A. M. A.*, Vol. LXXIX, No. 5 (July 29, 1922), p. 342.

4. In health campaigns, whether for remedial work or for positive health, it is necessary to win the leaders and the rank and file of the public. Community opinion must also be carried over into actual standards of life, working planes of living, those folkways which we call "health habits."

If this is to succeed, technical medical knowledge alone is inadequate. Principles of social psychology and social control must be mastered, in order that the sanitarian's efforts may be most effectively and economically directed.

Dr. Philip P. Jacobs, of the National Tuberculosis Association, writes:

> Every student of sociological theory should be required to apply in some direct way the knowledge secured in the classroom. This might be done by means of letters, speeches, advertisements, conferences, etc. Our courses in sociology are very apt to overlook the fact that there is a laboratory on every street corner and in every assembly. We have no hesitation in using the demonstration or laboratory method for students who take up "applied sociology" and who are interested in actual social work, but we lack, it seems to me, the application in a practical way of such things as Tarde's "Laws of Imitation," of Giddings' "Principles of Stimulus and Response to Stimulus," to the everyday affairs of life.

Moore, similarly, says:[2]

> It appears that the sanitarian of the future must be more than a bacteriologist and a hygienist and an engineer and a statistician. He should have at least a basic knowledge of economics and sociology; he must know the chief facts in regard to labor, the distribution of income, poverty, housing, prostitution, recreation, eugenics, and allied questions, together with recognized principles and laws in these fields. For an understanding of these problems, a knowledge of modern psychology also is necessary. As a sanitarian, he may not be able to raise wages and regulate the employment of women and children, but if he is informed regarding these aspects of public health, when he is called upon for advice as an individual or as a member of a commission, being free from the prejudices which limit the usefulness of most uninformed persons and being guided by his enlightened interests in the welfare of the community, he will occupy an enviable position of usefulness.

5. Finally, a knowledge of the general facts of population, community organization, social resources in terms of actual agencies, and the technique of social work (case, group, institutional, legislative) is necessary. While these things can doubtless be had through individual reading and hard knocks, they can be got more easily through courses in social economy and social legislation.

Some of this knowledge and skill may, indeed, be more essential than certain specialties of public health proper. A sanitarian may or may not be called upon to install a particular kind of filter, but he is sure to have to deal with *people*—as crowds, as clubs, as boards, as professions, as employers and employes.

PREPARATION FOR A PROFESSIONAL CAREER

Preparation for any professional career (or at least the provision for such preparation) should include four levels of work above that of the ordinary high school:

1. *Fundamental liberal education*, which is requisite to the professional attitude, culture, and status. This includes such subjects as composition and literature, foreign languages, mathematics, history, philosophy.

2. *Fundamental pre-vocational subjects*, many of which have also a liberal cultural value.

For sanitarians, this group obviously includes chemistry and biology, but should also include psychology and the other social sciences (politics, economics, ethics, law), as well as courses in general sociology. Such courses should give conceptual tools, and knowledge of terms, and a social point of view, evolutionary and perspective, in regard to such fundamental facts as the distribution of wealth, the standard of living, the family and other institutions, population problems, race relations, community organization, urban and rural conditions.

A prominent child health worker gives an interesting slant to this phase:

Social workers under my direction who have been thoroughly grounded in sociology, other things being equal, have a saner attitude toward their work and toward social progress than persons not well grounded. The study of sociology has been of inestimable value in enriching my own personal life, but the understanding of social causes which it has given me has been almost a handicap. The standpatter has a big practical advantage in our present-day civilization, and it is not always comfortable to judge our present-day conditions according to principles of social justice and progress.

3. *"Specific knowledge" courses,* as they are dubbed in a report of the American Association of Social Workers, come next. They are vocational, but do not involve actual technique or field training. For public health work, this group includes the "book l'arnin'" of bacteriology and epidemiology, for example. We contend that it should also include certain advanced subjects in social economy—such as child welfare, social hygiene and other social aspects of public health.

4. *Actual technical training* which includes laboratory and field work for practical purposes, under supervision, is the fourth and last stage. This should also include a certain amount of guidance in the social phases of such work, especially if the worker is to deal with disadvantaged groups.

Dr. Bolt, of the American Child Health Association, writes:

From my experience I should say that one who intends to go into any line of social endeavor should receive very thorough instruction in theoretical sociology and the history of social movements and, if possible, should secure some practical training during the summer recesses or on a leave during the term work. This practical experience should be under the direction of some organization that is doing actual work and meeting everyday problems of a practical nature.

Agnes J. Martin, R.N., when in the Health Department of Milwaukee, wrote:

Nurses have only in the past few years begun to realize that extensive preparation in sociology, economics, etc., is necessary to do good, that is, sceintific, public health nursing.

Miss Goldmark's recent report on nursing education advocates sociology early in the course for *all* nurses. Practically all of the special public health nursing courses require or include social economic subjects, but their value for male sanitarians is only beginning to be recognized, if at all, in many important public health schools.

SOCIOLOGY IN PUBLIC HEALTH COURSES

The present status of sociology in relation to public health courses at representative schools is indicated by the following statements:

We have never made any requirement in sociology in the department of public health, but I should be strongly inclined to make it a subject in the course if I felt that there was available a concise textbook pointing out its applications to public health practice.—(Professor Prescott, Massachusetts Institute of Technology.)

Having completed prescribed courses, the student has a wide range of choice, depending upon the field of public health which he wishes to enter. Certain courses in social economics are listed among the elective courses and will be accepted toward the degree.—(Dr. Force, California.)

I regard academic training in sociology not only as a requirement for our training courses in public health but also as an integral part of our public health training courses. . . . In both programs Sociology 29, Community Problems, is required. This, of course, means that the student must have had a course in general sociology in his undergraduate work. You will therefore see that I am a firm believer in the importance of sociology in public health training courses. In fact, public health administration is largely a problem of applied sociology.—(Director Sundwall, Michigan.)

Work in preventive medicine is largely limited to a lecture and laboratory course of four credit hours given to sophomore medical students. During this course they receive about six lectures on the relation of industry to disease; about four on housing problems; and three to six on social hygiene.—(University of Cincinnati.)

The school of medicine should develop in close affiliation with the department of sociology. The lack of social contacts and social

conscience in practitioners of curative medicine is great and the attention given to these aspects is scant. The outstanding need of the moment, as I see it, is to get some sociology into the medical school under the department of sociology. . . . I have taken this position on several occasions in recent years. . . . If some medical school would tie up closely with the department of sociology of its university, that school could make for itself an outstanding reputation.—(Dr. W. A. Evans, Northwestern University.)

Northwestern University has for some years offered pre-vocational and specific knowledge courses suitable for prospective sanitarians; and, in connection with the recently recommended development of its great new medical center in Chicago, it is hoped that there may be developed under Dr. Evans a technical curriculum in preventive medicine, integrated with the existing pre-vocational work, in some such manner as the curriculum at Michigan.

We make no special requirements as to sociology for those who desire to take up public health work here. Courses in the department of sociology are, however, open to these students.—(Dean Bardeen, Wisconsin.)

Dr. Kendall (Washington) does not include the subject in the public health curriculum.

We have been particularly interested here at Yale in furnishing training for social workers in the field of public health, and have designed our Certificate in Public Health somewhat definitely to meet this need. We have had several students whose major interest has been in sociology who have found the certificate a helpful preparation for a career in social work. Such students in addition to the required work for the Certificate in Public Health are permitted to take as much sociological work as they can find time for.—(Professor C.-E. A. Winslow, Yale.)

Our educational offerings at present are to the fourth year medical students and to the graduate nurses at Teachers College. Consequently, we have not the necessary sociological content for students of public health, although we are in constant touch with the work of Professors Seligman, Chaddock and Ogburn and others, in the relation of sociology to preventive medicine.—(Dr. Haven Emerson, Columbia.)

No specific requirements in sociology are made for those entering our courses. During the course for the Doctors of Public Health and for the candidates for the Certifificate in Public Health a course of lectures is given on sociological subjects. The course is entitled "Social Economics" and is meant to emphasize the public health aspects of the subject. The course consists of twelve lectures.—(Johns Hopkins.)

Evidently, if the assumptions in the first part of this paper are sound, there is still considerable room for development in existing public health curricula on the social economic side.

1. Moore, H. H. Public Health in the United States. Harpers, 1923, pp. 7, 394.
2. Op. cit., p. 372.

THE EDUCATION OF THE HEALTH ADMINISTRATOR*

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THE EDUCATION of the health administrator is a subject of much interest, and one to which many have given considerable thought. A proper consideration of the matter will take cognizance of the quality of man best suited to the work; what his training should be; the information he should have and of what his work will consist.

There are many kinds of administrative health positions, and therefore many kinds of health administrators; let us consider the one which is most common, and the one in which the members of this Institute are probably most interested, namely, the position of health officer of a city or town.

TYPE OF MAN NEEDED

To do well in any position, a man should be engaged in an activity for which he has a liking and in which he finds pleasure. Wise is the man who knows for what he is fitted and what his limitations are. One might have a great liking for an administrative position, but because of temperamental qualities be unsuccessful. A brusque manner, being ruled by impulse rather than judgment, or a propensity to hurt people's feelings and give offense, will handicap an administrator.

A health administrator must be somewhat of a statesman if he is to be successful; that is, according to the dictionary: "a man versed in the principles and art of government; especially one who shows unusual wisdom in treating or directing great public matters; also a man actually occupied with the affairs of government and influential in shaping its policy." The health administrator should be versed in the principles and art of government in the community in which he works and show wisdom in treating or directing public affairs. As he will be actually occupied with the affairs of government of his community, he should be influential in shaping policy. He should be a statesman and not a politician which again according to the dictionary is "one addicted to, or actively engaged in politics as managed by parties." To assume the point of view of the politician or to be thought of as of the politician type is certain in time to lessen his usefulness.

It is necessary that he be an organizer. Unless his sphere of activity is in a relatively small town, he will have under his guidance a group of men and women, employes of the health department. He must be able to organize this force in such a way that it will function effectively as a machine, producing the greatest amount of work with the least apparent effort and the minimum of friction. Unless he can do this, he is but poorly fitted for any administrative position where he will be responsible for the work of many people.

A pleasing personality, an optimistic turn of mind, a reasonable amount of enthusiasm and cheerfulness, with an ability to make friends, will go a long way toward success. One who in addition possesses an insight into mass psychology, is particularly fortunate.

* Read before The New England Health Institute, Boston, Massachusetts, May 8, 1924.

TRAINING

Let us now turn our attention to the training of the administrator and the things he should know. In order that he may approach his problems from a judicial point of view, he should have some knowledge of the history of public health ideas and work, that he may have a proper perspective. He should know the work of Jenner, Pasteur and Koch, and the multitude of others whose intelligence, patience and untiring labor have given us much of our present knowledge. It will be valuable to him to know of the excellent water supplies of Rome and other ancient cities brought long distances through well constructed aqueducts, distributed throughout the cities much as are the water supplies in municipalities at the present time, and carried through the houses by plumbing which would compare favorably with our own. In this connection, one should realize how short a time some of our municipalities have had safe, adequate water supplies. It may help too to know that the plumbing regulations of ancient Rome served the same purpose and were in about the same detail as those being enforced today by many of the health departments of our larger cities. Many of the ancient cities had adequate, well constructed sewerage systems which would compare with the better systems in use at the present time. It is interesting to consider how very recent is the installation of underground sewerage systems in certain of our own larger municipalities. These considerations tend to give a measure of humility which makes one see more clearly and judge more accurately of relative values.

Technical knowledge is a valuable asset to the health administrator. He should be thoroughly versed in epidemiology—the causes of disease, the factors in their spread, geographic distribution, conditions favorable to their incidence and the ages at which they are most common. He should know the periods of incubation, the usual duration of attacks, the periods of communicability and the frequency with which convalescents become carriers.

The general principles by which the potability of water supplies is determined should be known—the sources from which water may be safely obtained, the usual sources and causes of pollution, the principles of purification and treatment of water; and also how to determine the quantity and quality of sewage carried from a community, its possibilities for pollution of water courses and the methods by which it may be treated. This knowledge is needful as applied to his particular community, even though the control of water and sewage are functions assigned to other branches of the local government.

The potential possibilities of milk in the spread of disease is an important matter and the health administrator must have a full knowledge of what diseases may be spread by milk; why and how they are thus spread; the conditions under which milk is produced and what opportunities for contamination occur on the farm; the methods by which milk is shipped from the farm to the city; the conditions under which it usually reaches the city, and the conditions most favorable for its preservation in transit; the distribution and handling of milk within the city; the dangers of contamination to which it is there exposed; the methods of preventing, or of rendering harmless, contamination when it does occur; the methods of pasteurization commonly employed and how the process may be properly controlled.

The administrator should know something of the history of medical school inspection, of the methods employed in various communities, what accomplishments are attempted and how the objectives of inspection may be attained most effectively and economically. He should have definite ideas on the needs of health supervision of the school population; know what is currently meant by the health supervision of the preschool child and what is being done in various cities,

and what is most worth-while for the effort expended. Likewise, he will need to have definite ideas on the needs of health supervision of the infant population of the community; what is being done in infant welfare work; and how it is being done; what it attempts, what activities give returns commensurate with the effort and money expended; what it is possible to accomplish and what, in the light of our present knowledge, is futile. Prenatal work should be given adequate consideration; its agencies, purposes, efforts and accomplishments in various communities, and how the objectives desired can be most effectively and economically attained.

The administrator should be moderately familiar with the literature on housing. He should know to what extent housing has been made a matter of health supervision in various places, what is attempted by such supervision and what methods are used. He should know the types of houses used by the various industrial and racial groups in his community, the numerical and geographic distribution of these houses, the number of rooms per person or of persons per room, the geographic, racial and economic distribution of these conditions; sources of water supply; and sanitary provisions.

As long as there have been health departments, a part of the work has been the abatement of nuisances reported. Most health departments have corps of sanitary inspectors, whose time is given up to this work. Much has been said in recent years of the small part so-called sanitary inspection plays in public health and of its relative unimportance. It has been suggested that this work might properly be done by some department other than the health department, particularly as the nuisances complained of are usually conditions which affect the esthetic senses and generally have little relationship to the spread of disease or to the maintenance of health. There is much truth in this. However, a corps of sanitary inspectors properly employed may be used as an agency by which the health department can keep in constant touch with the housing conditions, the conditions of premises, the occurrence of outdoor toilets and the existence of private wells throughout the community.

The successful health administrator must have a knowledge of many things not usually considered as a part of his professional training. He must understand civics as they apply to his particular local government and his state government, and should know something of the workings of the federal government. As regards his particular local government, he should be familiar with the charter, if there is one; the basic laws upon which the local government is built; the organization of all the government departments, municipal or county or whatever the jurisdiction may be, the work they do and the amount of money they spend in doing it; and be sufficiently acquainted with all branches of the local government to enable him to know in what ways they can be used in coöperation with the health department in carrying out the community public health program and in what ways the health department can be of real service to the other government departments.

Inasmuch as politics plays a considerable part in many local governments, the health administrator should know the political organizations and practices of his community and, if possible, the political alignments. The more he knows of the political workings, aims and antagonisms, the better will he be able to steer clear of political affiliations and entanglements, understand the workings of the local government, the obstacles to be overcome and the means which will be most likely to secure for his department the things it needs. While keeping out of politics, he should understand their workings.

To understand his community and its people, the health administrator will need to be conversant with local history, the factors which have created local saints and martyrs and prejudices, the factors which have been most potent in the com-

munity's progress and welfare. The finest communities are those which have a past to which they are attached by the bonds of community pride and which in a measure determines the people's point of view and their judgment on community matters. The history of the health department itself should not be overlooked, for this will show what has gone before and in a measure explain the department as it is in the present.

THE HEALTH DEPARTMENT

Turning our attention to the health department itself, we find that this is the organization through which the health administrator does his work. This gives him many hands and many heads and the ability to do many times the amount of work it would be possible for one individual to do. Groups can work effectively and efficiently only when organized, and the better the health department's organization and supervision, the better will be its work. The amount of work a health department does depends not so much upon the number of employes or the amount of money at its disposal, as upon the efficiency of its organization, supervision and direction. The number of dollars spent is no measure of work done.

To make a department effective, duties and responsibilities must be clearly defined. In so far as possible, responsibility should be actual, not nominal. Responsibility placed upon an individual should not be greater than that individual is able to assume. Each activity should be under the immediate direction of one who understands its nature and what it is intended to accomplish. No person should have more than one "boss," to whom he reports and by whom he is given orders. Loyalty and pride in the work and in the department should be cultivated, but to accomplish this, the health administrator himself must be proud of his own department and loyal to those under him. There is nothing which will put sincerity into men's work or efficiency into an organization like the knowledge that the chief stands back of every individual in the organization all the time.

But organization alone is not enough. There must be supervision and the person in charge of each activity should know at all times just what those under him are doing. The health administrator's most important work is organization, direction and supervision.

A successful health department besides being well organized and supervised, should present a favorable appearance in its offices. The office is the point of contact between the department and the many individuals of the community. If it is clean, orderly, and business-like, it creates a favorable impression and gives an impression of efficiency. It will undoubtedly take much efficient work to overcome the impression made by an office having a poor appearance. What is true of the health department offices is equally true of the health department laboratory. In a laboratory, of all places, things should be orderly and clean. Good and efficient work may be, and undoubtedly often is, done in a messy and untidy laboratory, but it will frequently be difficult for the inexperienced and uninformed layman to realize that this can be so.

One of the important matters to which the health administrator must give considerable time, and one which, to the professionally trained man, is often devoid of interest, is the careful study of expenditures. Not only must he study expenditures but he must know the relationship between expenditures and work performed. Because he is in a better position than anyone else to see the whole work of the department, he is more competent to evaluate the results obtained from the different expenditures. As it is usually his function to submit estimates for appropriations, he should study the details of expenditures in order to justify such estimates before the appropriating body.

Although much work may at times be required to establish friendly relations

with other government officials and offices, it may lead to less obstruction and greater coöperation, and the ability to secure assistance at times when it is sorely needed.

It is the function of the health administrator to administer the health laws which have been enacted by the community. While there are many specific provisions commonly included in such laws, general provisions are usually also incorporated which give a latitude of action so great that the health department can engage in any health activity which is not in conflict with existing law and for which money is available in appropriations. The health department frequently is delegated authority to promulgate regulations on matters not specifically covered by law, or if there is a board of health, this delegation of authority may be conferred upon the board. These regulations have the force of law and the health department in promulgating them is acting as a legislative body. This function is of such importance that legal or judicial advice on regulations is necessary previous to promulgation.

THE COMMUNITY

The duties of the health administrator so far enumerated have had to do with the workings of the health department. The work of the health officer being the preservation of the life and health of the community, it is obvious that to carry on the work of the department, the administrator must study and know his people, his community and the field in which work is to be done. He must know the population distribution by districts in relationship to its racial, industrial and economic composition, and he will then be in a position to study the varying morbidity by race, industry, economic status and geographic distribution. Preservation of health is the prevention of morbidity and the work of the health department and of the health administrator is inseparably identified with the prevalence and prevention of morbidity.

Community health is a matter in which fortunately many individuals and organizations are interested and in which they wish to aid. Much of this interest will be helpful if properly handled. The health administrator, however, will constantly have imposed on his attention the interests, arguments and propaganda being carried on by individuals or groups interested in and advocating this, that or the other thing as the most important element in health preservation, or advancing arguments why greater attention and greater expenditures should be given to their respective interests. In this barrage the health administrator must not allow himself to be confused or his attention diverted from the development of a well-thought-out program. He must maintain the attitude of the student and philosopher. Of these enthusiasts and propagandists, some may be prophets a few years in advance of their time and may serve to emphasize and keep before the attention ideas having in themselves merit. But the health administrator in the serenity of his study, the light of his broader experience of community life and apprehension of the need for the carrying out of a logical, consistent, constructive program, must give proper place and valuation to each and every factor.

Time is an important factor in the carrying out of any community movement, and the health administrator must ever keep before him the law that the amount of accomplishment is in proportion to the product of the force exerted multiplied by the time during which the force acts. He will constantly come in contact with those nervous, restless souls, who, becoming interested in some aspect of public health work, are anxious to bring about the accomplishment of their objective—it may be perhaps to reduce certain of the mortality or morbidity rates or it may be something else—but they want to do it in a few weeks or in a few months. Such individuals need not be given serious consideration for within six months they will have a new interest or be carrying out a

new propaganda on some other subject. Usually anything that is worth while in a public health program requires time for its accomplishment. It takes time to bring about any appreciable change in a population's method of thinking, acting or living. He who has anything worth doing must usually plan to work at it for years. Those who have the patience to do this will in the end be rewarded with accomplishment. The things one fusses at today and forgets tomorrow seldom amount to much in a public health program.

CONCLUSION

You will, possibly, wonder where and how the public health administrator is to get the wide knowledge and training which it has been stated he will need. You perhaps have had in mind that an individual could enter a college or university, matriculate in some special course or department and, spending two to four years listening to lectures and doing laboratory work, emerge an accomplished health administrator. College courses are short as compared with one's lifetime. To the seeing eye and the active brain, life itself, whatever its sphere of action, is a school. One's days of learning begin with infancy and last throughout life. While one needs and is greatly helped by those things which may be learned in school, perhaps the greater part of one's education—the things of greatest value—must be the things he learns either by his daily contact with his fellow men, by his reading and study in his own library, or by the actual working out of problems as he meets them in his daily work.

THE SANITARIAN'S ORGANIZATION: ITS AIMS AND ACCOMPLISHMENTS*

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THE OBJECT of this organization and this school for the instruction of health workers is, obviously, to prepare those engaged in public health work for their duties. We must now recognize sanitary science as the newest of the sciences, in fact, it may be regarded as the highest expression of modern science in its application to the public's good. Its administration places the greatest responsibility on government, and for its success it requires the highest statesmanship and special training.

Sanitary science must be distinguished from hygiene, as the former deals with the masses and must be governed by group judgment, while the latter deals directly with the individual and is personal. This likewise necessitates a distinction between the practicing physician and the sanitarian. The successful practice of medicine does not mean that the physician is properly prepared to practice public health. There must now be doctors for public health as distinguished from doctors for the practice of surgery and medicine.

Sanitary science like all other sciences has been evolved from preceding experiences and knowledge. It has reached its present high recognition through many vicissitudes and discouragements. Its greatest difficulty has been the lack of trained men. This has resulted in unfortunate misunderstandings and grievous disappointments. Perhaps, the greatest handicap to its progress has been this very condition. Now, it is to overcome this defect and to successfully meet the increasing demands for public health work that this short school has been improvised for the training of sanitary

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workers, and the State Board of Health is glad to assist the Texas Association of Sanitarians in the conduct of this school until such time as our colleges and technical schools will recognize the demand for this special training and provide for it. We feel at this time that it is a real necessity and it is included in our program of public health education.

Furthermore we have arrived at the time in the march of progress when we should demand some mark of qualification from those engaging in sanitary work. There is no profession or special trade that does not require a license or test of proficiency before the applicant can register or engage in practice. Likewise, with the public health worker, it should not be enough to select him because of his honesty and industry. These are necessary prerequisites, it is true, but the responsibility of his position requires that he present specific technical or practical qualifications as well. We are well aware, at the same time, that learning alone does not mean success. The best educated technician or inspector may make a complete failure. There must be a personality and adaptability suitable for the place before success can be assured. We believe that the reason for such failure is due largely to the superficiality of much of our education and training; the failure of the school or teacher to bring out the latent qualities inherent in the individual, and the lack of the fundamental elements in our general education.

We should, then, consider as first requisites for the health worker—personality, the faculty of making one's self liked; adaptability, the faculty of fitting in agreeably under all conditions; and the possession of an inherent, moral and mental development sufficient to rely upon for a competent evaluation of a given health situation.

Sanitary science connotes so much that it is difficult to always define it. Likewise, it would be impossible to accurately outline the relation of training in health work to the problems of sociology in general, as their interests run along parallel lines. One had just as well argue the question of superiority between man and woman. Both have their distinct attributes and are necessary one to the other. But, we do believe that in all questions and conditions where the factor of health enters there should be supervision by one central source, to the end that coördination and a consecutive policy of work be carried out.

We may better illustrate our meaning of a superficial training, as contrasted with comprehensive knowledge, by the greater aptitude and responsiveness one traveler shows over another as he passes through the country. One man will see undreamed-of beauty in the very plainest landscape. The flora and fauna that he passes will point out to him the hidden meaning of biology and chemistry. The fossils and strata in the mountain passes and railroad cuts will reveal the history of the world and everywhere he will be in ecstasy over the marvels of nature. Another man traveling over the same route will see nothing in the landscape, or in the flora and fauna, in the mountain passes or growing fields. He is bored to death. To which of these men would you submit a proposition vitally concerning the welfare of a community? This contrast is presented to emphasize the point that in the training for public health work, there must be more than a superficial or mere practical knowledge of the subject. There must be also an understanding of the fundamental principles involved in a liberal education that will assure the proper perspective and evaluation of the situation in hand.

We should conclude from this that, besides requiring simply a practical standard for health workers, a course of study be exacted to include some of the elementary principles of sociology, economics, psychology, biology, bacteriology and chemistry; it being inferred from the foregoing that at least the fundamentals of these sciences are essential to give the worker

that broader conception of the problems of sanitation so necessary to his success. This does not mean that a college course should be required, however desirable that might be, but that in arranging courses of study there should be included a course of lectures, consecutively and definitely arranged to meet the requirement necessary as well as prescribed collateral reading.

To make instruction practical, I would suggest something like the following outline:

Designate each separate group of activities, such as mosquito inspection, water and sewage management, milk and food handling and rural sanitation a major study. Prepare a regular outline of study for each of these groups with collateral reading. Have the students doing inspectional work matriculate in one or more of these majors. At such annual meetings as these (or make them semi-annual if necessary) have regular instructors conduct these special courses and give examination on them. In connection with these courses arrange your general program in accordance with a consecutive outline embracing practical subjects dealing with the principles of sociology, economics and the biological sciences. A course may be completed during one or more years according to the student's previous training and application. Issue him a certificate of proficiency on the completion of a subject, these certificates to be accepted by the State Board of Health and other health departments as prerequisites to appointments for positions as sanitary inspectors. The student completing all the major courses should be given a certificate of graduate sanitary inspector that would enable him to qualify as a professional sanitarian.

This should in no wise eliminate a college course in sanitary inspection that might be given in our colleges and universities, but as a substitute to meet the demand for trained workers just especially at this time when the success of public health programs depends so much upon it.

In these remarks I have endeavored to point out the necessity, in the first place, for trained inspectors, and in the second place that their training requires some of the fundamentals in liberal education. In other words, it requires a little higher type of man for the successful pursuit of this work than for many other lines. The ordinary mechanic or artisan may successfully ply his trade to the perfect satisfaction of his employer; but such perfunctory service would be wholly inadequate on the part of the true sanitarian who must think in terms of group judgment and on matters of vital importance. The public health worker must not only possess a high moral fiber, but have vision and a sympathetic interest in his work. He must know the full significance of the hidden foe that he faces, a foe a thousand times more formidable and evasive than the array of martial armies on the field of battle. He must feel the strong sense of responsibility and, finally, he must be imbued with the love of service.

THE RESISTANCE TO PHENOL OF STAPHYLOCOCCUS AUREUS*

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METHODS of disinfectant testing have been the subject of considerable discussion during the past 15 to 20 years. Criticisms of current methods, with suggestions and modifications for supposed improvements, have marked the outstanding steps in the history of this phase of bacteriology. Rideal and Walker[1] published a very simple method of comparing the germicidal efficiency of disinfectants against *B. typhosus*, using pure phenol as the standard. The Lancet Commission,[2] recognizing certain deficiencies of the method, modified this test, and at the same time added to the method in such a way as to make it more involved and more cumbersome. The Hygienic Laboratory Method devised by Anderson and McClintic[3] made further modifications of the Lancet Method; and finally the Disinfectant Standardization Committee of the Laboratory Section of the American Public Health Association[4] revised the Hygienic Laboratory Method, in an attempt to increase its accuracy.

Throughout these years of study of this subject, only one idea seems to have been apparent in the improvements made in methods, and that was increasing the uniformity of the original scheme. In other words, the history of disinfectant testing is one in which modifications of previous methods for the purpose of securing greater uniformity has been the primary object.

Although we naturally desire accuracy in all our methods, it seems that efforts in this direction have sidetracked, so to speak, other equally important aspects of the problem. Disinfectants are used to kill pathogenic microörganisms. Since this is the primary object of their use, it naturally seems that in testing their efficiency, their power to kill the pathogens under conditions found in practice should be determined. This means, then, that the killing power against more than one pathogen must be determined. Heretofore, only *B. typhosus* and *B. coli* have been used in the standard methods proposed. Both these organisms grow readily in ordinary laboratory media, are easily handled, and, as a matter of fact, retain their biological properties with greater constancy than many of the other species.

Without going into a discussion of this matter, we might ask at this point just what value a phenol coefficient has when tested against one or the other of these two organisms. Tilley[5] has stated that ". . . a coefficient has no practical value whatever, except as a means of preventing the use of positively worthless preparations and as an aid to the disinfectant manufacturer in maintaining uniformity of his product." He states further that "any given disinfectant will have as many coefficients as there are methods," and he rests his opinion on a comparison of the figures obtained with the current methods of testing disinfectants. The fact that a disinfectant will kill *B. typhosus* does not mean that it will kill any other organism, nor that five times the strength necessary to kill this organism will kill all other

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pathogens. Experience obtained in our laboratory, and in others as well, proves quite the contrary to be true.

There is another group of workers in this field who have been interested in what is called the "specificity" of disinfectants. They have shown that the germicidal properties of disinfectants are not the same for all bacteria, nor for all pathogens. As early as 1891, Abbott[6] brought attention to the fact that mercuric chloride in a dilution of 1–1000 does not kill all of the cells of *Staph. aureus* exposed to it, although it does considerably reduce their number. Walters[7] calls attention to the weakness of the standard method of testing disinfectants, and cites as an example the fact that pine oil, which has a phenol coefficient of between 3.5 and 4.3 when *B. typhosus* is the test organism, does not kill *Staph. aureus* in 2 per cent to 4 per cent dilution in one hour. He at this time made a plea for a more practical test of the efficiency of disinfectants, and suggested using as test organisms those pathogens expected to be killed by the practical use of each specific germicide. Shippen and Griffin[8] have substantiated the results published by Walters,[7] McCoy, Stimson and Hasseltine,[9] and state further: "Pine oil emulsions made from various grades of pine oil failed to kill *M. aureus* . . . in any dilution capable of emulsification."

Dakin and Dunham[10] make use of different pathogens in their work on hypochlorites, and use them under conditions closely simulating those met in practice. Hamilton[11] criticizes the current standard method for testing disinfectants as not giving the specific information desired; he further suggests that disinfectants be tested against the specific pathogens against which they are to be used in practice.

Finally, in their report of 1918, the Committee on Standard Methods of Examining Disinfectants[4] give as their first suggestion for future work in this field: "The determination of the coefficient against disease producing types of bacteria other than *B. typhosus*, particularly the ones against which the disinfectant is to be used." It seems, then, that the time has already come when we should act upon these suggestions for a more practical test of the efficiency of disinfectants.

It would be impractical to make use of all of the pathogens, or even very many of them. For the present, at least, we should select organisms representative of certain of the more important groups, and use one species from each. Even this will entail a greater burden than it is pleasant to contemplate, but it may be possible after extensive investigations to reduce the number necessary for this work to cover a more limited range.

For testing disinfectants to be used in hospitals and the home, as well as on the person, the germicidal efficiency against the following pathogens at least should be determined:

B. typhosus (representative of the Gram negative, non-sporing bacilli)
Staph. aureus (representative of the suppurative group, and also Gram positive cocci)
B. diptheriae (representative of granular Gram positive group, and diphtheroids)
B. tuberculosis (representative of the acid-fast group)
Dip. pneumoniae (representative of the encapsulated, Gram positive cocci)
Strep. hemolyticus (representative of the septicemic pathogens, scarlet fever organisms, erysipelas, etc., Gram positive chain-forming cocci)
B. pestis (representative of the hemorrhagic-septicemic group)

These organisms would not be used in a phenol coefficient test; they are desirable in practical tests to determine the efficiency of disinfectants at various dilutions. In each case practical conditions should be simulated as closely as possible. *Staph. aureus* is one of the commonest pathogens encountered in hospitals, on the person, in cuts, wounds, etc.; disinfectants recommended for these places should certainly be expected to kill it in the dilutions specified. Although this organism is not a progressive pathogen, but an

opportunist, it is nevertheless important that disinfectants to be used in hospitals and on the person, in cuts, wounds, sores, etc., should with certainty kill this representative of the pus-forming group.

Staph. aureus is more resistant than the other pus-forming organisms, and is also the most common cause of suppuration. It is consistent, then, that this species be selected to represent this group. It is easily cultured in ordinary laboratory media, and is easily procured in pure culture. It is generally recognized, however, that *Staph. aureus* does not retain its resistance in culture as well as *B. typhosus*, for example. Nevertheless, this should not be objectionable if we have some standard by which to gauge the strains to be used for this purpose. It is the object of the present study to offer, or suggest, such a standard.

Since disinfectants used in hospitals, in wounds, cuts, sores, etc., would be expected to kill microörganisms in their optimum environment, or at least not far removed from their natural habitat and consequently exhibiting their maximum vigor, the resistance to phenol of 25 recently isolated strains of this organism was determined. Phenol has for so long been considered a standard of disinfectant work and in hospital practice, that it seems consistent to test these strains against it as a standard of comparison.

Twenty-two of these strains were obtained direct from pathological material at the bacteriological laboratory of Walter Reed Hospital, Washington, D. C., through the courtesy of Dr. R. W. French. The sources of these strains are as follows: eight from abscesses; three from empyema; five from osteomyelitis; seven from throat cultures; one from a burn; and one from a removed gland. They represent very well the staphylococci that may be found in hospitals, and may be considered a fair group to study for this purpose. Two other strains were isolated from suppurating lesions in cattle by Dr. Gouchenour of the Bureau of Animal Industry, and at the time of testing were only three months old. The last strain is our stock laboratory culture, which has been in use for a year and two months.

They were cultured in 10 c.c. plain nutrient broth of the following composition: 1 per cent Armour's Peptone, 0.5 per cent Leibig Beef Extract, 0.5 per cent NaCl, adjusted to pH 6.6 to pH 6.8 and transferred at 24 hour intervals for five successive days. They were then exposed to the following dilutions of phenol, 0.5 c.c. of culture to 5 c.c. of diluted phenol: 1–50, 1–60, 1–70, 1–80 and 1–90, for 5, 10 and 15 minute intervals at 20° C. The culture was removed from the upper part of the broth, care being taken not to include any sediment that might be present. Subcultures were made at the end of these intervals into 10 c.c. nutrient broth and incubated for 48 hours at 37° C. Growth was confirmed to be that of *Staph. aureus* by streaking on agar slants, supplemented in some instances by microscopic examination.

A detailed examination of the results reveal that the curve is not constant for all strains; the variations, however, are within very narrow limits. A summary of the 25 strains shows the following results: 1–50, no growth even after 5 minutes; 1–60 growth after 5 minutes by 11 of the strains, or 44 per cent; in 1–60 for 10 minutes, no growth by all strains, as also in 15 minutes; 1–70 growth by all strains after 5 minutes; 1–70 growth by 21 strains, or 84 per cent after 10 minutes; 1–70 in 15 minutes, growth by 10, or 40 per cent of the strains; 1–80, for 15 minutes growth by all but one strain. It must be noted that strain No. 226, which was killed by exposure to 1–80 phenol for 15 minutes, did not show as vigorous growth as many of the strains which showed greater resistance. As a matter of fact, those strains which are killed by 1–70 phenol in 10 minutes did not grow as heavily (vigorously) in broth as did those which resist this dilution for 15 minutes. A normal growth of *Staph. aureus* in broth shows a definite ring at

the surface of the medium and considerable golden sediment at the end of 48 hours at 37° C. It was noticed that the weaker strains did not have as noticeable a ring nor as heavy a sediment as did the more resistant ones. It would be justifiable to consider only those strains which gave heavy growth in broth in 48 hours at 37° C. as being worthy of consideration as test organisms. However, the data of all cultures are included in the discussion of this suggested standard. A summary of the results is shown in Table I.

TABLE I

Dilution of phenol	Exposed 5 minutes Strains resisting		Exposed 10 minutes Strains resisting		Exposed 15 minutes Strains resisting	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
1-50	0	0	0	0	0	0
1-60	11	44	0	0	0	0
1-70	25	100	21	84	10	40
1-80	25	100	25	100	24	96
1-90	25	100	25	100	25	100

It is not suggested at this time that *Staph. aureus* be included in standard methods as a test organism, but a standard is offered whereby future work done in this phase of the problem may have as its basis such strains of this organism as will come within the prescribed limits here given. Numerous papers on disinfectants in which *Staph. aureus* has been used have been published recently, but we are in the dark as to the resistance of these strains to any known standard. It is common knowledge that resistance of an organism to phenol does not necessarily imply equal resistance to other types of disinfectants. However, as a starting point, it still seems reasonable to retain phenol as a standard in this case.

If we are to use *Staph. aureus* in any type of disinfectant testing, whether in simple practical tests, or in a comparative test such as we now employ with *B. typhosus*, the strain used must have a resistance to phenol which will come within the limits of the above strains. In order to allow for such weaker strains as are killed by 1–60 dilution in 5 minutes, and by 1–70 in 15 minutes, we might suggest as standard the following limits:

Staph. aureus strains to be used in any future disinfectant testing must not be killed by 1–70 phenol in 10 minutes, and must not be killed by 1–80 phenol in 15 minutes. Such strains may or may not be killed by 1–60 in 5 minutes, and may or may not be killed by 1–70 in 15 minutes. Also any strains which have lost their resistance so that they are killed by 1–70 phenol in 10 minutes or by 1–80 in 15 minutes, are unfit for use as test organisms and must be discarded for new isolations, which will show the resistance indicated above. It is highly desirable, of course, that strains be used which show the maximum resistance, namely, resistance to 1–60 phenol for 5 minutes and resistance to 1–70 phenol for 15 minutes but in order that a standard may not be too exacting, the somewhat lower limits have been suggested.

Granting that the use of additional pathogens is desirable in studying the efficiency of disinfectants, it seems necessary to establish a standard of resistance of test organisms. This necessity is apparent in comparing the results obtained by Conover and Laird [12] with those obtained by the author, using the same technique. Conover and Laird proposed a new method of testing disinfectants, in which the strain of *Staph. aureus* used is readily killed by a dilution of 1–75 phenol in 3 to 4 minutes. As their findings are quite at variance with the results reported in this paper, parallel experiments were conducted, the strain obtained from Conover and Laird and a strain that was typical of the 25 studied, being used. The comparative tests made may be summarized as follows: Using the writer's strain of *Staph. aureus*, no reduction of numbers of viable organisms by a 3-minute exposure to 1–75 phenol, and only a

slight reduction in a 4 and 5 minute exposure was apparent; even at the end of 15 minutes not all the cells had been killed.

This confirms, in a sense, the data given previously, in which similar figures were obtained by the use of broth culture. It should be noted that broth and agar of pH 6.6 were used in this test, for this is the reaction that was found to be most suitable for optimum growth. On the other hand, when the same strain of *Staph. aureus* was used in broth and agar of pH 7.6, the reaction employed by Conover and Laird in their media, 1–75 phenol killed the strain used in the test in 15 minutes, and there was a noticeable reduction in living organisms in 4 minutes, and a still greater reduction in 5 minutes. It is concluded, therefore, that one reason for the difference between the results obtained by Conover and Laird and those reported here lies in the difference in reaction of the media. It was also noticed that their medium is almost white, while the agar and broth used in the work reported here is distinctly darker and of a yellowish-brown color ordinarily obtained in beef extract agar. Also, the growth obtained on the agar used by Conover and Laird is noticeably less luxuriant, a matter of considerable consequence in the present instance. With this strain of *Staph. aureus* comparable results were obtained—that is, killing of all organisms in 3 to 4 minutes by 1–75 phenol. It is clearly apparent that these organisms differ considerably in their vigor and consequently in their resistance to phenol. The proportion of culture added to diluted phenol is the same in the method proposed by Conover and Laird as in the method used in the present work, namely, 10 per cent, or 0.1 c.c. to 1.0 c.c. and 0.5 c.c. to 5.0 c.c. It seems that this proportion gives the most constant results.

The foregoing report shows that the results obtained are greatly affected by the degree of vigor and resistance of the strain of organisms used. The nutritive properties and the hydrogen ion concentration of the media are important factors in preserving the original resistance of the organism. This is consistent with the rules of biology respecting living beings in general. Suitable media must, therefore, be used to make the above standard for *Staph. aureus* applicable.

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VENEREAL DISEASES*

THE YEAR 1923-24 has seen no radical change in the venereal disease situation. In the main, health organizations to control these diseases have gone backward somewhat. This is due to some relative loss in popular favor. It was inevitable that the great advances made during the World War could not have been held in their entirety during the period of post-war reaction. However, the interest of health authorities continues unabated and the ground lost will be regained. The best opinion is that venereal disease is becoming less prevalent; and the venereal disease rate is declining. But this is opinion only. There are few figures available which prove the opinion to be correct beyond reasonable doubt.

The largest factor in this improvement is the attitude of the general public. A considerable part of the infected know better what to do and are more careful about infecting others than in time past. The facilities for treatment have been improved.

1. The committee recommends that health departments give careful thought to the development of the next step in their quarantine policies. Most of those who are infective with venereal diseases are cared for under that form of modified quarantine which has been called "physician's responsibility." By assuming a certain degree of responsibility for the patient's observance of so-called quarantine, the reporting physician is permitted to report his cases by number. The control of scarlet fever, diphtheria, and even smallpox, went through a stage called "physician's responsibility." They long ago passed on to more efficient stages of evolution.

The "physician control" of a case of venereal disease is not sufficiently close nor compelling for him to make good under this responsibility. If the patient is a conscientious, high-grade citizen and will comply with all regulations, "physician's responsibility" will work. If, on the other hand, that patient is a prostitute, making her living by her profession, with no surplus money, and driven by a conscienceless pimp, she will not comply with regulations and "physician's responsibility" will not work.

Health departments should mature a policy for the isolation of all careless, infective cases so long as they are infective. Before this can be comprehensively done, methods of curative treatment much be much more effective than they now are.

2. The committee recommends that health departments study the relation of pimps to the spread of venereal disease. In great measure the efforts of health departments ended "red light" districts and old style houses of prostitution.

3. And, finally, the committee recommends that the Committee on Venereal Diseases, as one of the standing committees, be done away with.

All of the matters in this report are matters for the Section to consider as a part of their regular discussions. The same criticism would apply to previous reports of the Committee on Venereal Diseases. There is no more reason for setting apart venereal disease as the province of one committee than there is for such action as to diphtheria, or other forms of contagion. Until such time as the Section may attempt to standardize administrative methods by means of carefully worked out committee reports, there is no logic in continuing a standing committee on venereal disease.

W. A. EVANS, M.D., *Chairman.*
WM. F. KING, M.D.,
ALEC N. THOMSON, M.D.,
JOS. S. LAWRENCE, M.D.,
FRED ADAMS, M.D.

* Report of the Committee on Venereal Diseases presented to the Public Health Administration Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 22, 1924.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

EDITORIAL COMMITTEE

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PUBLIC HEALTH TRAINING

IN AMERICA public health training is mostly confined to one school—the school of experience. To be sure, we have institutions of higher learning for training people in public health procedure, and there has not been a time within the last twenty-five years when more students could not have been accommodated in schools which gave excellent courses. But most present-day sanitarians did not shape their professional training with the expectation of engaging in public health work. There are countless transients in the public health field, visitors from other occupations who, after a brief sojourn, return to the place from whence they came. Even greatly increased endowments for schools of public health have not increased the number of Americans who are willing to spend their time and money in preparing themselves for a distinctively public health career.

We would not decry the value of the school of experience. Its lessons are thoroughly taught and its graduates are practical people. To the pioneers in public health, to the men from medicine, engineering, biology, chemistry, sociology, and other fields who have taken up and carried forward this fundamentally important project of protecting the health of the people, our debt is incalculable. We have many such men in our ranks today. All honor to them! The only trouble with the school of experience is that it is frightfully expensive. Will it be good economy for all concerned if we continue to train personnel after going on the job?

Why has not public health become a distinct profession? Neither medicine, sanitary engineering nor any one of the older established courses of professional training is by itself a fully adequate preparation for the public health administration of the future. A study of the curricula of these professional schools shows this to be the case, and a recognition of the fact is shown in the development of special schools of public health as distinct departments of universities. Any profession is built by a combination of the fundamental sciences plus a knowledge of the methods, procedures and applicability of the scientific principles in professional practice. Public health is not unlike the others. The administrative sanitarian equips himself with the principles of preventive medicine, sanitary bacteriology, sanitary engineering, sanitary law, government and political economy, vital statistics, municipal sanitation, milk and food control, water supply and waste disposal. He becomes familiar with the experience of cities and states in public health administration. He knows the distribution and limitations of budgets, the separation of activities into special fields, the coördination of the work of official

and unofficial agencies, together with a host of other important and practical facts which determine the difference between failure and success. We look to the university to organize and standardize this material in a special professional training. Why then are not people studying in these institutions?

The root of the present evil lies in the fact that while the American Public Health Association and the educational institutions have come to recognize the value of special public health training, the people and their elected representatives who are in charge of state, county and municipal governments have not. It is obvious that many public health appointments are made upon the apparent assumption that special public health training is of no particular value. The reason why men do not train themselves for public health is because such training receives so little consideration when appointments are made and because there is no guarantee of permanency in a position even after it is secured. We shall not progress until the people at large and their elected representatives recognize that each community needs the services of a trained, full-time health officer who can carry out a logical and continuing policy, just as they now recognize the need of such a man as the superintendent of schools.

The sanitarian of the future must be thoroughly trained, but after this training he may enter his profession directly. His needs are known. He requires some of the knowledge to be found in medicine, dentistry, engineering, law, sociology, business administration and journalism. There would be certain advantages if he could have practiced all of these professions before he became a sanitarian, but it is hardly possible. He does not have to belong to any particular sect, fraternity or political party. What he does need is knowledge and ability to efficiently administer a health department. Surgery, dentistry and many other distinct professions of the present day found obstacles in the way of their individual development and direct training. The public health profession is passing through those stages. We take our people from other professions and make them over. In the future it is to be hoped that we shall no longer hear the cry of the present day school of public health which bemoans that it does not "get the student young enough." Our hope lies in establishing public health administration as a procedure which, like public school administration today, provides positions of public service with tenure of office, adequate remuneration, and freedom from political interference. This does not mean that clinicians, engineers, chemists, bacteriologists and other specialists will not continue to be used as such. It means merely that the positions in public health will be definite, recognized and inviting and that young men and women will aim for public health from the *beginning* of their professional study and secure the most ideal equipment for their work.

Perhaps the procedure for developing this state of affairs lies in the New Jersey plan described in this issue. Certainly it is sound in fundamental principles. Public health administration demands familiarity with a definite and recognized body of knowledge. The first step in the appointment of a health officer is to ascertain that he possesses that information. If we demand this before appointments are made, a profession is established and permanency of position secured. The privilege of accepting such an appointment is not granted because of any particular degree, but because of a demonstration on the part of the individual that he has the requisite knowledge. This principle is well recognized in medicine. Comparing the laws and practices in different countries and in different states we see that it matters not if the man has a degree of bachelor of medicine or a doctor of medicine, or has several other degrees in addition. He is admitted to practice only if he can demonstrate that he has an adequate professional knowledge.

The standing of the cities of New Jersey when compared with others in recent national public health surveys shows that the state has apparently profited by insisting upon trained health officers. May we not look forward to the time when public health shall be universally recognized as a profession and a public service; when special training will be demanded of anyone seeking service and when the desirability of the position will make the young man aspire to it and equip himself for it; when schools of public health will train men in actual health department practice as medical schools now train students in the clinical practice of curative medicine, and when there shall be a professional unity and pride of service among all sanitarians regardless of their special field of work?

PNEUMONIA IN PITTSBURGH

THE EXPERIMENT of treating pneumonia as a contagious disease which went into effect April 1, 1924, under the direction of Dr. C. J. Vaux, Director of the Department of Health in that city, is being watched with a great deal of interest everywhere. Pittsburgh stands alone in its death rate from pneumonia (all forms). While the rate has remained practically stationary in every part in the original registration states during the period 1900-1920, it has steadily risen in Pittsburgh until it is higher than in any other large city. In addition to this, the fatality rate is higher. In the period 1873-1882 the death rate per 100,000 was 139.2. Each ten-year period shows a definite increase and that for 1913-1922 is 343.2. Omitting the year 1918, on account of the epidemic of influenza, the lowest rate for Pittsburgh during this period was 99 in 1875, and the highest 381 in 1920.

A number of explanations have been put forward for the high rate of Pittsburgh, none of which seem to explain entirely the situation. There seems to be little doubt that the foreign born give a higher rate than those of native parentage, and that the nationality from which the foreign born are sprung, further influences the pneumonia mortality, but comparisons show that this explanation does not account for the difference between Pittsburgh and some other large cities. Practically everywhere the negro mortality from pneumonia is very much greater than that of the whites. In Pittsburgh during eleven years, 1910-1920 inclusive, the death rate for negroes was 510 against 285 for whites. The increase in the death rate was 33 per annum against 8 for the whites. In Boston for the same period the rate for negroes was 340 against 200 for whites, while there was a decrease of 2.5 per annum for whites against an increase of 3.0 per annum for negroes. The same tendency in the pneumonia rate was seen in Chicago, the death rate for negroes increasing, while for whites it was showing a marked decrease. It is very probable that the negro population is the factor which, to a certain extent at least, will explain the pneumonia death rate, but even admitting this, it remains far from giving an adequate explanation of the situation in Pittsburgh. It is estimated that about ten per cent of the excess in Pittsburgh as compared to Boston, may be attributed to the difference in percentage in negro population. Of the total rise in the rate in Pittsburgh from 1910 to 1920, about 20 points may be ascribed to the high and increasing pneumonia death rate among negroes.

Among the causes which have been put forward to explain Pittsburgh's high death rate are the long hours of heavy labor in steel and iron mills with exposure to excessive temperature. The excess deaths among men as compared to women point somewhat in this direction. There are other similar indications, but the facts are not sufficiently clear to serve as a firm foundation for this belief.

The housing conditions have been greatly improved since the report of the Russell Sage Foundation in 1914, though overcrowding, lack of ventilation, and other unsanitary conditions still prevail, and sleeping rooms may still be found in which as high as ten lodgers find shelter in two shifts. The exposure to smoke and dust has often been blamed for pneumonia and there seems to be good ground for believing that the accusation is a just one. Other factors which have been studied may also play a part, but they should also increase the death rate and the incidence of several other diseases, and while there are some indications that this holds true, it does not explain the excessive pneumonia rate. Pneumonia was made a notifiable and quarantinable disease in Pittsburgh on April 1, 1924, and after this provision has been in effect a certain length of time, there will doubtless be additional facts available on which to base an opinion. Up to the present, there does not seem to be any good explanation of the excessive death rate from pneumonia in Pittsburgh, which amounts to 100 deaths per 100,000, and probably to 150 per 100,000, above what may be considered a reasonable death rate as compared to other cities in the United States. Boston, Chicago and Philadelphia have a death rate under 200 while Pittsburgh runs over 300.

The experiment is being watched with a great deal of interest by health officers and sanitarians everywhere, and it is greatly to be hoped that some real facts will be developed, which will explain the very high death rate in Pittsburgh, and indicate proper methods of prevention. In this connection it is interesting to recall that Dr. Samuel Henry Dickson, born in 1798, and who taught medicine in Charleston, S. C., and later at Jefferson Medical College, held that pneumonia was a contagious disease many years before the days of bacteriology.

EDWARD EMANUEL KLEIN, M.D., F.R.S.

THE DEATH of Dr. Klein in his eighty-first year occurred in Sussex, England, on February 9. He was born in 1844 at Ersec and received his education in Vienna. At the age of twenty-four he had already become a professor in the university and had published an important monograph on the muscles of the oesophagus. In 1871 he was invited to London by Sir John Simon to carry on certain bacteriological investigations for the Local Government Board, with which body he was associated for many years after. He made important investigations concerning many epidemic diseases, in addition to which some of the early studies on sewage pollution of water were due to him. While his education and early tastes were directed particularly towards anatomy, his life's work was in pathology and bacteriology, though his interest in other fundamental branches of medicine was never lost. His book "Introduction to the Study of Specific Microörganisms," published in 1884, was a standard authority for many years. He is well known also for his early studies of milk epidemics.

During his eighty years of life, he saw the birth and development of bacteriology, and was one of the first to recognize what that science meant not only to public health, but to medicine and surgery. Medical students of the present day will seldom run across his name, but only a few years ago, it was one of those most commonly found in advancing medical literature. There is no doubt that he will probably be remembered chiefly as a great cytologist, but those interested in public health and who know the enormous influence of bacteriology on our preventive practices, will not forget his notable contributions to the sciences in which they are particularly concerned.

ASSOCIATION NEWS

ST. LOUIS ANNUAL MEETING

PROGRAM COMMITTEE MEETING

The second meeting of the Central Program Committee was held in New York on Saturday, April 18. All of the sections were represented, with the exception of the sections on Child Hygiene and Public Health Nursing, the following being in attendance:

Dr. Henry Field Smyth, Chairman Industrial Hygiene Section

Dr. Chas. Craster, Chairman Public Health Administration Section

Mr. James A. Tobey, Chairman Health Education and Publicity Section

Dr. Wm. Guilfoy, representing Vital Statistics Section

Mr. Geo. Fuller, representing Sanitary Engineering Section

Dr. H. W. Redfield, Vice-Chairman Food and Drugs Section

Dr. Norman MacL. Harris, Chairman Laboratory Section

Tentative programs were outlined by the various section representatives and the titles of the papers to be given in the joint sessions were discussed. The preliminary outline of the section programs and joint sessions will be given in an early edition of the JOURNAL.

It was suggested that some of the speeches given in the general sessions might well be broadcast over the radio. The Chairman of the Health Education and Publicity Section announced that this section would like to broadcast some pertinent topic to the other sections in session, each section to discuss for a moment the value of health broadcasting after the demonstration. Mr. Calver, the Executive Secretary, was asked to confer with the Local Committee as to the feasibility of inter-section broadcasting as well as broadcasting on the air.

LOCAL COMMITTEE

An excellent Local Committee has been exceedingly active in formulating plans for the coming annual meeting in St. Louis, October 19–22, and all indications point toward an unusually successful convention. Collaborating with this committee is a General Committee consisting of some hundred additional prominent St. Louis citizens. The following names constitute the personnel of the various divisions of the Local Committee:

Honorary Chairman, Hon. Victor J. Miller.

Chairman, Dr. Max C. Starkloff.

Treasurer, Dr. Elsworth Smith.

Secretary, Mr. Max Kaufman.

Finance, Mr. Dan Kerckhoff, Chairman.

Arrangements—Dr. A. J. McLaughlin.

Entertainment, Dr. Emmett P. North, Dr. James W. Stewart, Jefferson City, Mo.

Entertainment for Women, Mrs. Willard Bartlett.

Publicity, Mr. Charles Miner, Chairman; Dr. F. W. Bailey.

Daily Bulletin, Dr. E. J. Goodwin.

Scientific Trips, Mr. E. E. Wall.

Transportation, Dr. Robert Hyland.

Meeting Rooms, Dr. Downey L. Harris.

Hotels, Dr. Borden S. Veeder.

Registration and Information, Mr. Frederick Rein.

FORUM SESSION

The success of any forum depends a great deal upon the number of questions that are asked. This is especially true of a public health forum, for so many phases must be considered. Three good questions have already been proposed and have been selected to lead off the session. These will be announced in the July JOURNAL, together with the names of those who will lead the discussions.

It is unfair to the individual himself or to the community he represents to go away from this meeting without presenting some question with which he is confronted and which is debatable. No question that is presented which relates to any phase of public health work is unimportant, for it may be of vital

interest to the rank and file of those engaged in preventive medicine. You may feel certain that any question which you submit will receive consideration.

Questions may be submitted from the floor or in advance of the meeting. In order to have your question receive primary consideration it should be submitted in advance, if possible. Address your advance questions to the Secretary of the Forum Committee, Charles F. Wilinsky, M.D., Blossom Street Health Unit, Health Department, Boston, Massachusetts.

COMMITTEE ON PUBLIC HEALTH TRAINING

The Committee on the Standardization of Public Health Training is arranging a conference discussion for the coming annual meeting. Each section of the Association is now represented upon the committee and an interesting discussion is certain to take place, dealing with both the general and certain selected special problems in the training of public health personnel. Through the office of the Association, the committee will be glad to receive suggestions concerning this conference from any interested members.

CHILD HYGIENE SECTION

The Child Hygiene Section of the Association is planning to give certain sessions at the St. Louis Convention to the subject of school medical inspection, and to other phases of school health work. It is hoped that the members of the Association will spread this news to their acquaintances who are school physicians, or who are engaged in some phase of health education, in order that as many as possible may avail themselves of the opportunity to attend the next annual meeting.

EXHIBITS

Exhibits which are primarily of interest to the health profession will be an important feature of this year's annual meeting, as they have been in the past. They will be held in the Hotel Statler, the annual meeting headquarters, where all the Association meetings will be held. Official exhibit space has been set off for the accommodation of exhibitors, and letters have already been sent out with a diagram. The booths offer a wide choice in space, price and position, and will be suitable to the needs of all. The Association will furnish complete information upon request.

NEW EDITION OF STANDARD METHODS OF WATER ANALYSIS

Bids are now being received for the publishing of the sixth edition of "Standard Methods for the Examination of Water and Sewage." The fifth edition has been exhausted and it is hoped that the forthcoming edition will appear at an early date. Announcement of the exact date on which this new Standard Methods will be available will be given in a later issue of the JOURNAL.

NEW SHIPMENT OF "TRANSACTIONS"

The "Transactions of the International Conference on Sanitary Engineering, London, 1924," for which the Association is distributor in the United States, are enjoying an unusual sale, being one of the best sellers in the history of the Association's book department. The first shipment has been completely exhausted and part of the second supply has already been sold. Judging from the orders received, not only sanitary engineers but also workers in other fields of public health are interested in the excellent papers which are contained in this volume.

ADDRESSES OF THE EXECUTIVE SECRETARY

Mr. Homer N. Calver, Executive Secretary of the Association, has presented several papers during his western trip. The first was on the scientific program of the annual convention of the Texas State Medical Association which was held in Austin, May 5 to 7, the title of the paper being "The Practicing Physician and Public Health Work." At the World Advertising Convention held in Houston, Texas, May 10 to 14, he spoke on the subject of "Health in Community Advertising."

Mr. Calver met with the health officers of New Mexico in their annual meeting at Albuquerque, May 15 and 16, and gave a talk upon the appraising of health work. After he has conferred with the members in the Pacific Coast States he will attend the annual meeting of the National Conference of Social Work at Denver and discuss one of the papers to be presented.

LIST OF MEMBERS

Proposed for election to the A.P.H.A., April 1 to April 30, inclusive.

W. H. Graham Aspland, M.D., Peking, China, Medical Officer of Health for the Legation Quarter of Peking.

Miles J. Breuer, M.D., Lincoln, Nebraska, Examiner, Lincoln Public Schools, Life Extension Institute; Secretary, Public Health Committee, Chamber of Commerce.

Carolina V. Brown, R.N., Grafton, West Virginia, School Nurse.

Walter M. Brunet, M.D., Brooklyn, New York, Director, Department of Medical Activities, American Social Hygiene Association.

Alexander M. Carr, M.D., Trenton, N. J., Medical Director, Board of Education, School Health Administration, Trenton, N. J.

A. Lester Crapser, Scranton, Pennsylvania, Director of Physical Education, also supervision of the Hygiene Teaching.

J. V. DePorte, Ph.D., Albany, New York, Director, Division of Vital Statistics, State Health Department.

Augusto Duprat, M.D., Rio Grande, Brazil, Inspector of Health of the Ports. (Assoc.)

Helen Robertson Gage, M.D., Dr.P.H., Suffield, Conn., Health Officer; Suffield School, Lecturer on Hygiene and Sanitation.

Eldred H. Gibbons, College Station, Texas, Instructor in Bacteriology, Texas A. & M. College.

Guy G. Graham, D.V.M., Kansas City, Missouri, Secretary, Jensen-Salsbery Laboratories, Kansas City, Mo. (Assoc.)

Harvey T. Herold, M.D., Newark, N. J., Works Surgeon of Western Electric Co., Kearny Works.

International Life Insurance Company, St. Louis, Missouri. (Sust.)

Louise Johnson, R.N., York, Pa., Superintendent School Nursing, York, Pa.

Thyra H. Josselyn, M.D., New York, N. Y., Medical Department Examining Physician, New York Telephone Company.

Gerhard Kaemmerling, B.S., M.D., Glendale, California, Health Officer.

Hannah V. Langworthy, M.S., Albany, N. Y., Assistant Bacteriologist, New York State Department of Health.

Helen Morrison Locke, A.B., Greensboro, N. C., Case Worker for Greensboro Board of Public Welfare.

Frank R. Morton, M.D., Chicago, Ill., Medical Director, Standard Oil Company (Indiana). (Assoc.)

Elna Harrison Nelson, Bloomsburg, Pa., Director of Health Education, State Normal School, Bloomsburg, Pa.

Eileen O'Brien, New York, N. Y., Executive Secretary, Rockland County Tuberculosis and Public Health Committee, State Charities Aid Association. (Assoc.)

Willard M. Olson, M.S., Chicago, Ill., Sanitary Engineer, Cook County Health Department.

Stuart E. Phelps, M.D., Farmington, Conn., Town Health Officer.

Charles J. Prohaska, M.D., Philadelphia, Pa., Professor of Hygiene, Physical Education; Director of Health Education, Temple University, Philadelphia, Pa.

William H. Purdy, M.D., Mount Vernon, New York, Health Commissioner.

Bernard J. Schaaf, Pittsburgh, Pa., Studying Public Health—Bacteriology. (Assoc.)

Edith Swaine, R.N., Staten Island, New York, Teaching Student Nurses, Bacteriology and Hygiene.

Noble A. Upchurch, M.D., Jacksonville, Florida, City Health Officer.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to office in New York City. In replying give age, professional training, salary requirement, previous positions held and three or more references.

Wanted: A whole-time city health officer for Paducah, Ky., at once. Present health officer is leaving to accept a position with U. S. Public Health Service. Salary $3,600 per year. State qualifications, experience and reference in first letter. Address, J. N. Bailey, M.D., Paducah, Ky.

Laboratory Technician: Newly organized county health department in the southeast needs a laboratorian to take charge of all work connected with public health laboratory. Excellent opening for a good man or woman. Prefer one able to use typewriter. Address 601, A. G., care this JOURNAL, New York address.

Wanted: Regularly qualified Medical Doctor to take full-time position on staff of Department of Health, N. B., as District Medical Health Officer. Applicant must hold degree or diploma in public health from a medical college or university of repute. Salary $3,000 per year with traveling expenses. Please apply with full personal particulars and photo to Dr. Geo. G. Melvin, Chief Medical Officer, Department of Health, Fredericton, New Brunswick.

Woman Technician—Woman capable of doing blood chemistry and similar work wanted. $150.00 per month. Address Laboratory Box 26, Station D, New York City.

POSITION WANTED

Positions wanted announcements of 50 words or less will be carried for individuals at a charge of $2.00 per insertion. Copy should be received at the New York office by the 8th of the month preceding publication.

Physician: Young physician, Columbia graduate, wants public health or industrial position, full- or part-time. Recent experience: one year with the Veterans' Bureau and one year with the General Electric Company. Capable of routine or research. Licensed in New York and New Jersey. Excellent references. Address 342, E. S., care of this JOURNAL, New York address.

Wanted: Position as health officer by graduate in both medicine and dentistry. Ten years' experience and knows all branches of public health work. Can furnish best of references from state and city officials. Registered in medicine in Massachusetts, Georgia, and Florida; accredited health commissioner in Georgia, and holds certificate. Address, 355, B. P., care of this JOURNAL, New York address.

Wanted: Position as full-time health officer for city or county. Experience in city, county and state public health office; available within a few days, middle or southern states preferred. Address, 354, C. H., care of this JOURNAL, New York address.

Wanted: Graduate sanitary engineer with sixteen years experience in public health work, including four years on Panama Canal, desires position as full-time health officer, or work with a national organization. At present health officer of city of 40,000 with a salary of $4,500. Change desired on account of political interference. Address, 353, W. W., care of this JOURNAL, New York address.

Wanted: Position by M.D. as executive or administrator in public health. Past experience in industrial, school and child hygiene. Efficient public health speaker and capable organizer. Thorough knowledge of county and municipal governments. Age thirty-five, married. Special course in public health at Yale. Address 359, C. A., care this JOURNAL, New York address.

Wanted: Well trained and experienced man in pathology, bacteriology, serology and biochemistry desires position. Holds B.Sc., Ph.D., B.Ch., and M.D. degrees. Extensive experience in teaching; contributor to many medical journals. Can furnish excellent references. Address 356, K. S., care this JOURNAL, New York address.

Wanted: Experienced man, fifty-two years of age, desires position as director of health education and publicity bureau or a tuberculosis or public health association. Competent to edit a public health journal. For many years executive secretary of a large tuberculosis league. Best of references. Address 357, S. R., care this JOURNAL, New York address.

Health Educationist—Member of the American Public Health Association, graduate of A-1 Medical College, with over ten years' experience in organizing, lecturing, editing and publishing, and in industrial relations position, is open for engagement as executive in welfare work. State salary. Address 360, C. L., care this JOURNAL, New York address.

Health Officer: Physician, age thirty-three, with five years' practical experience in health work. Public health course in Johns Hopkins. At present county health officer, but prefer municipal health department work. No preference as to location and immediately available. Address 358, C. K., care this JOURNAL, New York address.

BOOKS AND REPORTS

William Crawford Gorgas. His Life and Work—*By Marie D. Gorgas and Burton J. Hendrick. Philadelphia: Lea & Febiger,* 1924. Price, $5.00.

This book may be considered a tribute to General Gorgas by his wife. In addition to giving the chief facts in the life of a man who won a great reputation as a sanitarian, it is a very good history of yellow fever, especially as it has been known in the United States and the countries contiguous to our shores. It also gives an interesting, if somewhat loosely written, history of the work of the Yellow Fever Commission headed by Walter Reed. Unlike most biographies, it begins with the story of the courtship of his wife, and only when we get to the second chapter do we find the facts concerning Gorgas's descent and birth.

The sanitation of the Panama Canal Zone will always be considered one of the great events in the history of sanitation and one of the great conquests of man over disease. General Gorgas, as Chief Sanitary Officer, deservedly gets the credit for this accomplishment, which has been hailed by many people as the greatest piece of sanitary work ever carried out by man.

What we like about the book particularly is the unstinted credit given to Dr. Carlos J. Finlay and to the Walter Reed Commission. It acknowledges freely, what has not been known to the public, but has been known to all students of the question, that Gorgas did not believe in the mosquito transmission theory. In the cleaning up of the city of Havana, which is described in glowing terms, the mosquito was left out of consideration entirely, and it was only when yellow fever appeared in spite of the improvements in the cleanliness of the city, that the error was recognized, although Dr. Finlay had constantly pointed out to Gorgas the mistaken idea under which he was working.

It seems to us a pity that so much space has been given to attempting to prove that Gorgas made his own plans for mosquito extermination and did not simply follow out those devised by Reed. Surely the honors paid to Gorgas during his life were sufficient to compensate for such a claim, even though it were admitted.

We also like particularly the free credit given to men like Dr. Henry R. Carter, whose remarkable epidemiological investigations unquestionably pointed the way to the successful experiments which ended in clearing up the age-old problem of yellow fever. Credit is also given to Mr. LePrince, Dr. Darling and others, who carried much of the burden of the actual work. It is pointed out that Gorgas seemed, during all of his life, to have been faced by the problem of yellow fever. It is particularly interesting to note that Dr. Josiah C. Nott, a yellow fever expert, who was perhaps the first anywhere, and certainly first in America, to advocate the idea of the agency of the mosquito in carrying yellow fever, and who believed that he had proved his point by remarkably correct observations, was the physician who attended at the birth of Gorgas.

Time has apparently not softened the memories of the blundering and stupidity in high places in Washington, nor the unfairness of Colonel Goethals. Only those who lived during that period and kept up with the history of the Canal work know what Gorgas particularly was subjected to in the way of hidebound red tape, stupid conservatism and fatuous ignorance on the part of those in charge of the work, many of whom did their digging of the Canal in Washington, D. C. Colonel Goethals did take away from Gorgas important work, the full value of which the Sanitary Department alone could appreciate, and nothing that could be done by those on the spot could change Goethals' action. The success of the Canal, which was a medical one as much as an engineering one, was frequently jeopardized by such ignorance and bull-headed interference. It is the old story of laymen holding official positions setting their opinion against those of scientific men, the latest and most disastrous

example of which was the failure of the British Expedition in the Far East during the World War, when the commanding general not only refused to listen to the doctor's advice, but threatened him for his persistence. It was this, more than any one factor which led to the failure of this expedition.

We commend the authors in that they do not mince words, but give the history clearly, even to quoting some of the scathing reports made by Dr. C. A. L. Reed, who had been commissioned by the American Medical Association to visit Panama and report on the conditions there. The Walker Commission and "more particularly Mr. Grunsky" received his careful attention, from which it did not recover.

The book is well gotten up and beautifully printed, but contains an unfortunate number of inexcusable blunders in proper names. The name of Dr. Victor C. Vaughan is misspelled four times on one page. Dr. Longcope is dubbed "Wakefield" instead of "Warfield." Dr. de Schweinitz is given a wrong middle name. Dr. Pearce Bailey's name is misspelled, and so on. An ordinary amount of care would have prevented these blunders and only the most careless of proofreaders would fail to notice that a name was spelled one way on one page and another way on another page.

M. P. RAVENEL.

The Inheritance of Acquired Characteristics —*By Dr. Paul Kammerer, University of Vienna, Institute of Experimental Biology. Translated by A. Paul Maerker-Branden. New York: Boni and Liveright,* 1924. 414 pp., 43 illustrations, including 32 full-page plates, some in color. Price, $4.50.

The author is well known in biological circles as an experimenter of the Institute of Experimental Biology in Vienna, and a doughty protagonist for the occurrence of the inheritance of acquired characteristics. His own experiments have dealt with the induction of color changes in salamanders in which black and yellow are mingled in the normal color pattern. If the young are reared on a yellow background the yellow of the skin areas is increased. If reared on a black background the black areas are increased. Both changes are inherited, at least for a few generations, but crosses between the two modified types do not show Mendelian segregation, although crosses between corresponding varieties in nature do exhibit it. This evidence seems, however, to support the view that the experimentally induced changes may have affected only the cytoplasm and not the nuclear mechanism of heredity. If so, most biologists would not regard this as a critical instance of the inheritance of acquired characters.

In this age of the dominance of the genetic concept in biology this work is quite unorthodox. It is to be regretted that its presentation so savors of special pleading, as to mar the effect of the arguments. The evidence offered is sometimes trivial, as for example, the citation of the three generations of Pomeranians which "right from their earliest stages of development, show a decided inclination to chew tobacco. The taste for tobacco, manifesting itself spontaneously in the dog, is something so unnatural that it could not have been brought about by anything different than an environment (in this case a men's club), in which quantities of tobacco were easily accessible to them." Neither the author's evidence nor his arguments seem to be convincing in the face of the large amount of critical work on the mechanism of heredity and the extent of its control. The author has not in his arguments adequately presented the possible significance of "critical moments" or the possible specificity of hormones acting at critical times in the lfe of the gametocytes. He warns his readers that the widespread acceptance of the genetic point of view may inhibit experimentation on the matter of the method of modification in evolution. Possibly his book if rewritten in a more critical and less biased vein would stimulate more interest and inculcate the open mind on this much controverted and too little investigated field of biological theory.

C. A. KOFOID.

Precis-Atlas de Dissections de Zoologie— *Par le Dr. Amédée Bonnet, Chef de Traveux, Chargé de Cours de Zoologie a la Faculté des Sciences de Lyon. Preface de M. le Professeur R. Koehler. Paris: Doin,* 1924. 416 pp., 74 pls. Price 46 francs, 50.

This is an elementary treatise on the morphology and comparative anatomy of animal types from the protozoa to the mammals. It is abundantly illustrated with diagrammatic outline figures of the organ systems of the animals more frequently used in laboratory instruction. Many of the animals of interest in parasitology, hygiene and sanitation are included in the plates.

C. A. K.

Health and Cleanliness—*M. V. O'Shea and J. H. Kellogg. New York: The Macmillan Company,* 1924. (Rev. Ed.) Pp. 279+vii, many illustrations. Price, 80 cents.

If the Boy Scouts applying for examinations for the merit badge in personal or public health in the smaller cities could have access to this little book, their examiners in general would have much less difficulty in passing them, for there is evidently a lack of just such information in available literature at the libraries. Lacking such resources the boys, and for that matter many adults, are obliged to glean the information they wish for in the many puzzling matters of hygiene and sanitation from various and not always trustworthy sources.

"Health and Cleanliness" is a sincere effort to present information pertaining to its title in a form useful to any one who can read understandingly. Its simple language, broad treatment and its many illustrations make it valuable and attractive.

Illumination is here placed properly as a factor to health, house cleaning by dust-raising methods is decried, and the proper disposition of household wastes is recommended. The treatment for foods in the store and in the house to keep them clean, the handling of milk so that it may be a safe factor to nutrition, the effect of tobacco and alcohol on the young and the need of our own watchfulness to prevent our germs from being passed to others, are subjects well discussed.

The one criticism to be made is with reference to the notes on the fumigation of rooms, a practice which has been discontinued, in eastern cities, at least, these ten years and more. The process has perhaps a psychological value, and it may be that it is worth while to take advantage of this. Review questions and the setting forth by themselves of lists of health problems, together with a good index increase the practical value of the little volume.

JOHN RITCHIE

Proceedings of the Imperial Social Hygiene Congress at the British Empire Exhibition, Wembley, May 12th-16th, 1924—*London: National Council for Combating Venereal Diseases,* 1924. 286 pp.

The Imperial Social Hygiene Congress was organized to promote coördinated dealing with the social problems of the British Empire and it was fortunate in securing the Minister of Health as its Honorary President, Lord Trevethin as President, and the services of a number of other distinguished men and women. This book contains the complete proceedings of the Congress, consisting of many excellent addresses and discussions, some of which have been reprinted in other journals and publications.

In his opening address, the Right Hon. J. Wheatley, M.P., Minister of Health and Honorary President of the Congress, said, "We have six official representatives of Dominions and ten delegates of Crown Colonies. We also have with us, I am pleased to say, representatives of fifty-eight important local authorities, representatives of ten universities, and delegates from thirty-six national organizations. In addition to these, the League of Nations is represented by that lady so well known to all social workers—Dame Rachel Crowdy—and we have also representatives from the American Social Hygiene Association. Now the mere list of representatives is proof of the interest taken in this subject all over the world. It is not a national but an international subject."

Among the addresses in this collection are "The Present Position of Government Action in Venereal Disease," by Sir George Newman; "The League of Nations: International Position with Regard to Prostitution and the Suppression of the Traffic in Women and Children," by Dame Rachel Crowdy; "The Relationship Between Venereal Disease and the Regulation of Prostitution," by Sybil Neville Rolfe, and "Some Aspects of Social Hygiene," by Sir Arthur Newsholme.

Also under the special sections of Education, Administration, Venereal Disease Treatment, The Medical Profession, and Imperial Questions, are printed important papers and the discussions which ensued.

This collection of the Congress places on record an accurate and up-to-date account of what Great Britain is accomplishing and of what she hopes to accomplish (both in a national and in an international way) in all aspects of social hygiene. R. H. E.

The Foundation of Health: A Manual of Personal Hygiene for Students—*By William Barnard Sharp, S.M., M.D., Ph.D. Philadelphia and New York: Lea & Febiger,* 1924. Pp. 248. $2.50.

Personal hygiene is a subject which seems to have an ample quota of erudite treatises, textbooks, manuals, and popular books de-

voted to it. This particular one, which is written along traditional lines, is intended for early college use, the author being a professor. The contents, excellent as they may be, are extremely sketchy in places and many important topics, such as health examinations, are omitted altogether. A bibliography of general references, which might be more comprehensive and inclusive of more modern works on the subject of personal hygiene, is appended.

J. A. T.

Rats and **How to Destroy Them**—*By Mark Hovell, F.R.C.S., with introduction by S. L. Bensusan. London: John Bale, Sons & Danielsson, Ltd.*, 1924. Pp. 465. Price, 10/6.

The author of this book, when he was quite young, was entrusted with the care of an estate which was overrun by rats. He was not content with a superficial attempt at riddance but went to considerable lengths to study the situation from all angles. Ever since, he has been engrossed in a study of rats and practical methods leading to their eradication. At the outset he states that it is more or less futile to attempt to destroy a large colony of rats by traps alone; that the rats become wary of the traps and that the unusual fecundity of the species will compensate for those killed.

All kinds of traps, poisons, viruses, flooding, blocking, rat lime, varnish, etc., are described and detailed instructions are given for their use. Several times mention is made of keeping traps, especially the "run" traps which use no bait, set throughout the year. Not much mention is made of building the rat out of existence with concrete, nor of making inaccessible the food and water which they must have to sustain life and multiply. The opportunity should have been taken to explain that rat proofing is not unreasonably expensive; that a fireproof building is not necessarily rat proof but that this may be added at an increased cost of not over one-half of one per cent. It seems also, that in a comprehensive treatise on rat eradication some mention should be made of fumigation with hydrocyanic acid gas or its substitutes inasmuch as this is a widely used, and, combined with lachrymatory gases, a relatively safe procedure which is very lethal to rodents, vermin, etc., yet does not injure metals, fabrics, nor foodstuffs. It is possible that this method was purposely omitted inasmuch as the book was intended for the use of the general public.

One gets a general impression from the book and especially the chapters on dogs, ferrets and rat shooting that the author enjoys a rat hunt as a sporting proposition. One could almost imagine him in a ratless world mournfully talking of the good old days when one could match wits with these clever animals.

The plan suggested near the end of the book for an elaborate antirat organization with county officials, bounties, etc., sounds more like American enthusiasm than English conservatism. In many matters laws and organizations can do little with a listless people. A public spirit that decrees that rats are, along with other vermin, a disgrace to those that harbor them, added to enlightened community enterprise, will do more than law or bounties. Education is necessarily bringing this about and this book is a valuable contribution to this end.

The book deals especially with rats in houses, shops, warehouses, outbuildings, stables, cow houses, pigsties, gardens, greenhouses, on ships, near streams, ponds or lakes, on shooting estates, on farms and in sewers. It should be well worth its price to all persons concerned in managing property.

F. C. TURNER

Scientific Research and Human Welfare—*By Franklin Stewart Harris, Ph.D., President, Brigham Young University, with the collaboration of Newbern I. Butt, B.S. New York: Macmillan Company*, 1924. Pp. 390. $2.50.

A condensed story of some of the conquests in disease control gets the place of honor in this book, as the first of its nine parts is concerned with health. The 53 pages devoted to this subject are divided into nine chapters, recounting achievements in finding the causes of disease, in subduing such special maladies as yellow fever, diphtheria, and typhoid fever, the development of painless surgery, X-rays, specific remedies, and lengthening human life. For its purpose this book is adequate and should stimulate the student, for whom it is obviously written, to further study in these engrossing topics. The student, however, and the sanitarian, too, will have difficulty in finding the narrative of the romance of sanitary science in any one existing volume. It is a story for some great historian and it is one of the few books which is really needed to be added to the public health bibliography.

J. A. T.

Filtration and Clarification of Milk—*Technical Bulletin. By A. C. Dahlberg and J. C. Marquardt. Geneva, N. Y.: New York State Agricultural Experiment Station.* 104, July, 1924.

This bulletin discusses the use of filters and clarifiers for the removal of foreign material in milk which the authors state as undesirable because (1) it is unsightly; (2) it may be injurious to health; (3) it may introduce bacterial contamination, including disease organisms or others which might decrease the keeping quality of the milk, and (4) it may introduce foreign flavors and odors.

The study considers the effect of clarification and filtration upon the flavor and keeping qualities, creaming ability, bacterial and cell content of the milk. Special consideration is given to the effect of temperature of clarification upon the creaming ability of the milk, the effect of clarification on the size of fat globules, and the milk fat percentage in upper and lower milk.

The laboratory studies were verified by tests made in two commercial plants using both gravity and pressure filters.

The general conclusions reached were:

1. Visible insoluble sediment was completely removed by either filtration or clarification, but microscopic studies showed particles of sediment in the filtered milk which were absent in the clarified milk. Whether the commercial value or healthfulness of the milk is measurably improved by the removal of this invisible material is doubtful because milk from a health standpoint is probably not greatly improved by straining or centrifugalizing out the foreign material.

The composition, flavor, acidity and keeping quality of the milk was not affected noticeably by either treatment.

The creaming ability of milk was not affected by filtration at any temperature or by clarification at cold temperatures. Clarification at a warm temperature reduces the size of the fat globules; breaks the fat clumps, and reduces the depth of the cream layer. Pasteurization after clarification at warm temperatures does not restore the cream layer to its original depth.

Bacterial counts made by the agar plate and direct microscopic methods were not uniformly increased or decreased by filtration. With one exception, there was a tendency to increase the count of milk with more than 100,000 as a result of clarification. A decrease in the size of bacterial clumps in clarified milk of low count was shown by direct microscopic examination.

Leucocytes, other cells, and cell fragments were not removed from milk by filtration, but clarification removed over half of them.

Filter cloths should be used only once, due to the danger of contamination and difficulty of cleaning.

T. C. S.

Scientific Preservation of Food—*By Thomas M. Rector, Consulting Chemist, John Wiley & Sons, Inc.*, 1925. Pp. 203. Price, $2.00.

A consideration of the very large amounts of money which are annually wasted through the spoiling of food products due to ineffectual methods of packing and preservation, wherein means which are basically wrong and scientifically unsound have been employed, forces this book upon the attention of the food packer. The harm to health which spoiled foods may cause furnishes the incentive to the public health worker to give heed to such a discussion of how spoilage may be prevented.

The treatment of the subject is not technological but is rather an exposition of the basic underlying principles which are involved. The language is non-technical, the style is easy and interesting, while the plan of development is logical, proceeding from a consideration of the classes of foods through a discussion of the microbial, enzymic, physical and chemical forms of spoilage to which each class of foods is liable, to the final dissertation on how these various forms of spoilage for each class of foods may best be prevented by refrigeration, dehydration, chemical preservation, fermentation, hermetic sealing, heat sterilization or pasteurization, or by combinations of two or more of these means.

Outside of the suggested use of inert gases such as nitrogen or carbon dioxide to replace air in conjunction with hermetic sealing to preserve products of the nature of dried fruits, dried vegetables, dried milk and dried eggs, it cannot be said that anything really new is presented, but nevertheless the book has real merit and value by reason of the fact that the subject is important and the treatment is sound. The printing and binding are well done.

H. W. REDFIELD.

The Relation of **Medicine to Industry.**—*Proceedings of the Conference Board of Physicians in Industry. Tenth Anniversary Meeting in New York City, April 4, 1924—Special Report No. 30, National Industrial Conference Board, 247 Park Ave., New York. Paper. 88 pp. Price $1.00.*

This report includes all of the papers which were read before the conference. The introduction includes a brief historical sketch of industrial health, the creation of the Conference Board of Physicians in Industry, April, 1914, the plan of establishment of medical services for members of the Conference Board on a plane equal to that of other major departments, the definition of the field and the creation of standard requirements. Not only medical but economic and administrative factors compose a considerable content of the papers presented. The volume gives a list of members of the Conference Board of Physicians and of numerous publications which the National Board has put out.

E. R. HAYHURST

HEALTH DEPARTMENT REPORTS

IRA V. HISCOCK

Hartford, **Conn.**—The fortieth annual report of the Hartford Board of Health for the year 1924 is one of continued progress. Bound in an attractive blue paper cover, the first pages of the report are devoted to the organization of the Board of Health commissioners and a comparative financial statement for the years 1923 and 1924. From this statement it is learned that the total cost of the health department in 1924 was higher than in 1923, amounting to $1.01 per capita. Excluding expenses for the isolation hospital and laundry, this figure is reduced to 54 cents.

A death rate of 9.8 per 1,000 population, adjusted for residence, and the lowest infant mortality rate yet recorded of 61.9 per 1,000 births are outstanding items in the health record. It is also noteworthy that 66 per cent of the births occurred in institutions and that only 8 per cent were delivered by midwives. Health stations are financed by the city through the Board of Health, while the work is carried on by paid workers from the Visiting Nurses' Association, assisted by volunteers from the Junior League and the Council of Jewish Women. The program includes prenatal care, baby welfare, advice in nutrition, and child guidance for preschool children. Children who are sick are referred to their physician or a dispensary, and medical advice is expected to be given only to those who cannot afford the services of a private physician. A maternal milk service, financed by the Junior League with the coöperation of the V.N.A. and the Board of Health, furnishes a safe supply of maternal milk for poorly developed children.

In the isolation hospital, 26 per cent of the cases of scarlet fever, 23 per cent of those of diphtheria, and 10 per cent of the diphtheria carriers were cared for last year. In 1923 the figures for scarlet fever, and for diphtheria were 36 per cent and 41 per cent respectively.

In the first 12 pages of the report, the superintendent of health refers in condensed form to the principal activities and results of the past year, the remaining 31 pages being devoted largely to statistical tables. This enables the lay reader to obtain readily a fairly good idea of health conditions in Hartford, while, detailed information is also supplied for those who care to study further.

Newark, N. J.—The 39th annual report of the Newark Department of Health contains several features worthy of mention. It is evident at the outset that the report has been thoughtfully and scientifically prepared, and while interesting to certain groups of lay people, will doubtless prove most instructive to health administrators.

An introductory statement informs the reader that the year 1923 was one of low mortality and epidemic prevalence for the city of Newark. This fact is later emphasized by detailed statistical data, which show among other things a death rate of 11.7 per 1,000 upon an estimated population of 439,000. A welcome decrease of epidemic diseases of children is noted. An infant mortality rate of 68 per 1,000 living births is 6.8 points less than that recorded for 1922 and is the lowest infant mortality rate ever recorded for Newark. The birth rate was 25.3 per 1,000 population.

The decrease in death rate from all forms of tuberculosis is also striking, as shown by the figures 202.2 per 100,000 in 1917 as compared with 92.5 for 1923. Among 17 deaths from tuberculous meningitis, 13 were children under 5 years of age. Although a decrease of 12.4 points is noted for colored people, the problem is great here as elsewhere as shown by the rate of 410.5 per 100,000. A large factor in improvement in tuberculosis control is stated to be the provision of more hospital and sanatorium beds for this disease, along with a more favorable attitude on the part of the public and the physician. "A potent factor in reducing the death rate has also been a wider knowledge of the fact that tuberculosis may be treated in the home with as good results as in the sanatorium, provided a properly ordered regime and open air life could be carried out consistently and faithfully by the patients."

In addition to the favorable record for a large number of diseases and contributory causes of death, Dr. Craster points out the fact that deaths from certain other causes have been increasing. This is notably true of organic heart disease, cancer, and deaths from accidents, particularly from automobile accidents. These data are exceedingly well presented for a long period of years in tabular and graphic form and are worthy of attention and study.

This report is well printed in good type, and in addition to the carefully prepared tables and graphs is illustrated by pictures from the health show held during the year. As this is a report of 300 pages, one is assisted in its study by a single page table of contents. The work of the various departments is set forth in special reports to the health officer by the heads of the different divisions.

A special article by the health officer on "The Home Sweatshop and Its Health Problems" is also a feature. It is pointed out that model laws do not assure model conditions, and that the most advanced methods as yet adopted by a government to curb the sweatshop systems have been carried out in the state of Victoria, Australia. "Where it is possible for the sweatshop worker and the manufacturer to meet on common ground for the purpose of discussing the case from both sides, there cannot but result better work and economic gain for the employer as well as wide benefits in health and welfare for the sweatshop worker."

State of Wyoming—The seventh biennial report of the Wyoming State Board of Health has many good qualities. One's first impression is of a concise report of state health activities, printed in type which is easily read, and bound in cream colored paper covers, with a well balanced title page. A classified financial statement is included, together with lists of the five members of the board (including the secretary and executive officer), and of the 23 county health officers and their deputies. The principal facts concerning prevalence of disease and causes of death are set forth in the text, supplemented by a few detailed statistical tables.

In the early pages of the report, an interesting account of the various activities of the State Board of Health indicates that the recognized functions of this organization have broadened considerably with the development of the public health campaign to include more than protection of the public against some of the more serious contagious diseases. "It is the function of the health department to protect the people from all sources of disease . . . to educate the public about diseases and how to avoid them." Emphasis is placed on the value of protection against smallpox by vaccination; against typhoid fever by inoculation, and against diphtheria by immunization with toxin-antitoxin. Attention, however, is directed to the very small appropriation for health work of only $10,000 for a two-year period.

The death rate per 1,000 population in 1923 (1924 data not recorded) was 10.3; the birth rate, 23.2; and the infant mortality rate, 80 per 1,000 live births. These rates, together with financial appropriations, are compared with those of neighboring states in an instructive manner.

Among the noteworthy developments reported was the establishment of a whole-time county and city health department, with headquarters at Casper. This was made possible through the coöperation of the city, the county, the school board, and the Rockefeller Foundation. "The work has succeeded to such an extent that for 1925 the same authorities have obligated themselves for an annual expenditure of $23,200, adding two nurses to the former staff, one for school inspection and the other for infant welfare work." An appeal is made by the State Health Officer for the organization of additional full-time health units.

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Ear disease should be prevented without waiting for deafness, pain or other ear symptoms. Careful attention to general hygiene, especially to that of the mouth, nose and throat, is very essential to prevention of deafness.

HOLT, RUFUS L., and REYNOLDS, H. K. Malta Fever and Its Prevalence Along the Mexican Border. *Mil. Surgeon*, 56:414, Apr., 1925.

Fifteen out of twenty-two counties forming the Mexican border of Texas, and four north of this line are infected. The writers believe that malta fever is also endemic along the Mexican border of New Mexico and Arizona.

HORTON, THEO. New Type of Chlorinating Apparatus at Albany Water-Works. *Eng. News-Rec.*, 94:650, Apr. 16, 1925.

Control valve, pressure gage, U-tube manometer and rate-of-flow chart based on pressure loss and density of gas.

KINYOUN, CONRAD. Viability of B. Typhosus in Stored Shell Oysters. *Pub. Health Rep.*, 40:819, Apr. 24, 1925.

B. typhosus was recovered 15 days after the oysters had been fed with this organism. Brief review of previous experiments.

LOCKHART-MUMMERY, P. Cancer and Heredity. *Lancet*, 208:427, Feb. 28, 1925.

Adenomata of the large bowel are common antecedents of cancer and adematosis tends to develop in succeeding generations in the same family. Illustrated by three cases with the family history of each.

LOUDON, JULIAN, and MCCORMACK, JAMES M. Notes on the Isolation of the Glover Microorganism from Blood and Tissue of Carcinomatous Cases. *Canad. Lancet & Pract.*, 64:211, May, 1925.

Report of twenty-two cases from which an organism was isolated and cultured in each instance answering the description of one or more stages of Dr. Glover's pleomorphic hyphomycete.

MILLER, JAMES ALEXANDER. Early Diagnosis of Pulmonary Tuberculosis. *New York Tub. Asso. Bull.*, 6:1, Mar.–Apr., 1925.

History of the patient, complete examination, including X-ray, sputum examination and tuberculin and complement fixation tests are all necessary in positive diagnosis.

MINER, CHARLES H., and MOSES, H. E. Public Health Measures in the Control of Typhoid Fever. *Atlantic M. J.*, 28:343, Mar., 1925.

Measures adopted in Pennsylvania to lessen the incidence of typhoid fever, with a review of the disease in the state from 1906 to 1924. Citation of some notable epidemics.

MOORE, FREDRIKA. Relative Values in School Health Work. *Boston M. & S. J.*, 192:845, Apr. 30, 1925.

How far should school health work go toward standardization? The place of the teacher, school physician, and nurse in the program and their relationship to each other.

MURRAY, GEORGE R. A Study of Twins in Health and Disease. *Lancet*, 208:529, Mar. 14, 1925.

Similar twins resemble each other in the finer details of structure and metabolism and both are liable to suffer from those diseases due to some inborn error. When disease develops in one, steps should be taken to prevent the onset of the same malady in the other.

OHIO STREAM POLLUTION LAW AMENDED TO GIVE INCREASED CONTROL. *Eng. News-Rec.*, 94:696, Apr. 23, 1925.

Larger powers delegated to the Ohio State Department of Health particularly over industrial wastes. Streams may be classified.

PARK, WILLIAM H. Immunity from Communicable Diseases. *Red Cross Courier*, 4:15, May 1, 1925.

A brief discussion of immunity and vaccines and antitoxins in use.

PEDERSEN, H. V. Water Purification for Small Cities. *Am. City*, 32:538, May, 1925.

A small city that is dissatisfied with its old well supply should consider the development of a surface supply before expending money in developing one that is already unsatisfactory.

PIERCE, C. C. Some Reasons for Compulsory Vaccination. *Boston M. & S. J.*, 192:689, Apr. 9, 1925.

A review of smallpox prevalence in recent years, with special reference to the epidemics in Michigan, Minnesota, and Windsor, Canada. Illustrated by photographs of five Windsor cases.

RANDOLPH, ROBT. ISHAM. The Present Sewage Disposal System of Rochelle, Ill. *Am. City*, 32:544, May, 1925.

Old septic tank will be remodeled and a separate sludge digestion and splinkling filter system built. Diagrams of plan and layout of units.

REPORT OF ADVISORY COMMITTEE ON OFFICIAL WATER STANDARDS. *Pub. Health Rep.*, 40:693, Apr. 10, 1925.

Proposed standards recommended as to source and protection, bacteriological quality, and physical and chemical characteristics for drinking water supplied to the public by common carriers in interstate commerce.

ROCKWOOD, PAUL REED. Lessons on Nutrition Derived from the Great War. *Mil. Surgeon*, 56:385, Apr., 1925.

The recent war emphasized the importance of the modern scientific view of nutrition and the necessity for placing it in the hands of experts. The Division of Food and Nutrition of the United States Army should plan in time of peace, and serves as a foundation for any future national effort.

ROGERS, SIR LEONARD. Resemblances Between Leprosy and Tuberculosis. *Brit. J. of Tuberc.*, 19:69, Apr., 1925.

A comparison of the bacteriology, incidence and climate, conditions influencing infectivity, paths of infection, and prophylaxis and treatment.

ROGERS, SIR LEONARD. Tuberculosis Incidence and Climate in India; Rainfall and Wet Winds. *Brit. M. J.*, No. 3345:256, Feb. 7, 1925.

"The direction, steadiness and strength of the rain-bearing winds appear to be the most important factors, in addition to high rainfall and absolute humidity, in influencing the prevalence of pulmonary tuberculosis in Indian jails."

SCHUMAN, MICHAEL. Atypical Influence in Children. *Med. J. & Rec.*, 121:484, Apr. 15, 1925.

A discussion of types, symptoms, treatment and complications.

SHELDON, RALPH. Infant Feeding. *New York State J. M.*, 25:688, Apr. 24, 1925.

Points to be remembered in the feeding of infants, both breast-fed and bottle-fed. Also a discussion of infantile diarrheas.

SIMON, CHARLES E., and SCOTT, JOS. M. The Paul Test in the Diagnosis of Smallpox. *J. Lab. & Clin. Med.*, 10:562, Apr., 1925.

When controlled by histologic examination, the so-called Paul method is valuable in diagnosis.

SIMPSON, J. V. A. Nutrition. *Lancet*, 208:472, Feb. 28, 1925.

Results of tests on 148 children in an open-air school using the Baldwin-Wood tables, showing that further investigations on weight-height-age tables are needed in exploring the field of nutrition and malnutrition.

STOWELL, FRANCES R., and BEATTIE, MARGARET I. A Comparison of Methods for the Production of Anti-Sheet Hemolysin in Order to Determine the Day on which the Highest Titer is Obtained. *Am. J. Hyg.*, 5:1, Jan., 1925.

Comparing the five methods used on rabbits, the highest titer is produced on the second, third or fourth days after the second injection. No one method is advocated as the response which the animals give to the injections varies.

THE CLASSIFICATION OF CAUSES OF SICKNESS. *Pub. Health Rep.*, 40:824, Apr. 24, 1925.

List of diseases and pathological conditions for industrial morbidity statistics, based upon the International List of Causes of Death.

THRESH, JOHN C. The Action of Water Upon Copper Pipes. *Lancet*, 208:675, Mar. 28, 1925.

Since water acts far less upon copper than iron or lead, copper pipes are safer and can be used for waters not acid in reaction. Under ordinary circumstances the amount of copper taken up by water is too small to endanger health.

VEATCH, N. T., JR. Operation Results at the Water Purification Plant at Topeka, Kansas. *J. Am. Water Works Assn.*, 13:439, Apr., 1925.

Description of the treatment of the hard, muddy, polluted Kansas River water.

WATERMAN, EARLE L., and DRAKE, H. P. Testing and Placarding Roadside Waters in Pennsylvania. *Eng. News-Rec.*, 94:645, Apr. 16, 1925.

Less than half of 841 supplies examined were approved by the engineer and traveling laboratory making tests on ground.

WEBER, HENRY S. Diphtheria: Its Diagnosis and Prevention. *Atlantic M. J.*, 28:451, Apr., 1925.

A discussion of the procedures necessary to solve the diphtheria problem. States should pass laws requiring children that are Schick positive to be immunized.

WILINSKY, CHARLES F. The Health Unit and the General Practitioner. *Boston M. & S. J.*, 192:843, Apr. 30, 1925.

A brief discussion of the purposes and aims of Boston's health unit, the program being carried on, and its relationship to the physician.

YOUNG, C. C., and MARSHALL, M. S. Endo's Medium. *J. Lab. & Clin. Med.*, 10:532, Apr., 1925.

A brief summary of the most common Endo media in use with a brief write-up of a series of feces examinations by Endo media of varying meat base, the pH and amounts and ratios of basic fuchsin and sodium sulphite.

BOOKS RECEIVED

Books received during April are listed here. Many of these will be reviewed.

Recovery Record for Use in Tuberculosis. By Gerald B. Webb, M.D., and Charles T. Ryder, M.D. Second Ed. Rev. New York: Hoeber, 1925. Pp. 81. Chart sheets 110. Price, $2.00.

Camp Sanitation. By George C. Dunham, M.D. Reprinted from Camping Out, A Manual of Organized Camping, for Playground and Recreation Association of America. New York City. Pp. 444. Price, 25c.

General Physiology. By Philip H. Mitchell, Ph.D. New York: McGraw-Hill, 1923. Pp. 748. Price, $6.00.

Workmen's Compensation Insurance. By Michelbacher & Nial. New York: McGraw-Hill, 1925. Pp. 503. Price, $4.00.

Making Friends with Our Nerves. By Orison Swett Marden. New York: Crowell. Pp. 308. Price, $1.75.

Mental Growth of Children. By Professor Buford J. Johnson. New York: Dutton, 1925. Pp. 160. Price, $3.50.

Report of the Cambridge Health Education Conference. Called by the American Child Health Association and held in Cambridge at the invitation of the Massachusetts Institute of Technology, June 23–28, 1924.

Specialized Courts Dealing with Sex Delinquency. By George E. Worthington and Ruth Topping. Bureau of Social Hygiene. New York: Frederick H. Hitchcock. 1925. Pp. 460. Price, $3.00.

Leprosy. By Sir Leonard Rogers, C.I.E., and Ernest Muir, M.D. New York: William Wood, 1925. Pp. 301. Price, $4.75.

Hygiene and Public Health. By George M. Price, M.D. Philadelphia: Lea & Febiger, 1924. Pp. 306. Price, $2.25.

New World Health Series. Book I. Primer of Hygiene. By Ritchie-Caldwell, 1924. 80c. Book II. Primer of Sanitation. By Ritchie, 1925. 84c. Book III. Primer of Physiology. By Ritchie, 1924. 88c. Yonkers: World Book Co. Third Revision of Series.

The Essentials of Healthful Living. By William S. Sadler, M.D. New York: Macmillan, 1925. Pp. 481. Price, $3.50.

Practical Methods in Microscopy. Fifth Ed. By Charles H. Clark, A.M., D.Sc. New York: Heath, 1925. Pp. 337. Price, $3.00.

Gynecology for Nurses. By A. M. Seifert, A.B., M.D. New York: Appleton, 1925. Pp. 325. Price, $3.00.

Tumors and Cancers. A Biological Study. By Hastings Gilford, F.R.C.S. London: Selwyn and Blount, 1925. Pp. 703. Price, £2. 2s.

Health and Good Citizenship. By Andress and Evans. Boston: Ginn & Co., 1925. Pp. 376. Price, 96c.

Health and Success. By Andress and Evans. Boston: Ginn & Co., 1925. Pp. 253. Price, 76c.

Le Developpement de L'Infection Bacillaire Chez L'Homme. By Dr. E. Aubertin. Paris: Gaston Doin, 1924. Pp. 340. Price, 20 fr.

The Effects of Ions in Colloidal Systems. By Dr. Leonor Michaelis. Baltimore: Williams & Wilkins, 1925. Pp. 108. Price, $2.50.

The Lazy Colon. Newer Methods in the Treatment of Intestinal Stasis (Constipation). By Campbell and Detwiller. Second Edition. New York: The Educational Press, 1925. Pp. 312. Price, $2.00.

Verhandlungen der Funfunddreissigsten Versammlung der Deutschen Gesellschaft fur Kinderheilkunde in Innsbruck 1924. Im Auftrage der Gesellschaft Herausgegeben von Dr. F. Guebel, Professor in Jena Stellvertret Schriftfuhrer. *Monatsschrift fur Kinderheilkunde*, January and February, 1925. Price, $7.60 per year.

PUBLIC HEALTH NOTES

Public Health Courses in University Summer Schools During 1925—An increasing number of universities and colleges of the United States are offering courses in various public health subjects at their summer sessions, some of three and some of six weeks duration—over ninety courses in all. In many instances an extensive program is presented, including virtually every subject which a health officer or physician might desire.

Below is a list of the universities and colleges which have submitted to the United States Public Health Service announcements of their courses.

There are a number of additional schools offering courses of special interest to public health nurses, school nurses, physical directors and teachers. Some seventy institutions will give one or two courses in the public health field or do not state how many such courses are included.

Full information may be obtained from the United States Public Health Service, Washington, D. C.

UNIVERSITIES OFFERING COURSES OF GENERAL INTEREST TO PHYSICIANS AND SANITARIANS

University or college	*Place*	*Number of public health courses*	*Date of summer session*	*Duration of courses*
Columbia University	New York	90	July 6–Aug. 14	3 and 6 weeks
University of Michigan	Ann Arbor	90	June 22–Aug. 14	6 and 8 weeks
	Lansing			
University of Colorado	Boulder	19	June 22–July 27	Two terms of 5 weeks each
	Denver	9	July 28–Aug. 28	
University of Minnesota	Minneapolis	15	June 19–Aug. 1	6 weeks
			Aug. 1–Sept. 5	
University of Iowa	Iowa City	..	.....	Two terms of 6 & 5 weeks
University of California	Berkeley	8	June 22–Aug. 1	6 weeks
University of Utah	Salt Lake City	7	June 10–July 22	6 weeks
			July 27–Aug. 28	5 weeks
Utah Agricultural College	Logan	7	June 15–July 25	6 weeks
			July 27–Aug. 29	5 weeks
Massachusetts Institute of Technology	Cambridge	5	June 15–Sept. 15	Courses of varying lengths
University of Oregon	Eugene	2 }	June 22–July 31	6 weeks
	Portland	2 }		
Harvard Medical School	Boston	Numerous	June 1–Sept. 30	17½ weeks
Lehigh University	Bethlehem, Pa.	6	July 6–Aug. 19	6½ weeks
New York School of Social Work	New York	3	July 6–Aug. 15	6 weeks

Simmons College—Recently a brief bulletin was published on opportunities for graduate study at the college. Of special interest is the program in laboratory procedure offered by the Department of Biology and Health in coöperation with the Massachusetts State Department of Health and the Boston Dispensary Laboratory. The student spends a school year at Simmons in the School of Science, followed by thirty-two weeks in the Hospital Laboratory, the State Bacteriological Laboratory, the State Vaccine and Serum Laboratory and the Wassermann Laboratory. Finally the student devotes ten additional weeks to a thesis. The program leads to the Master of Science degree.

This course is of exceptional interest because of the unique coöperation between official and private health agencies and an educational institution. Its graduates will have a broad training in science and a working knowledge of all the important technical procedure in hospital and health laboratories and should, therefore, qualify for more than routine responsibilities.

For information apply to the secretary of Simmons College, 300 The Fenway, Boston, Mass.

Newly Created Professorship at Columbia—Professor Earle Bernard Phelps, formerly professor at the Massachusetts Institute of Technology and at the Hygienic Laboratory of the U. S. Public Health Service, has been appointed to the newly created professorship

in sanitary science at Columbia University. Though accredited formally to the faculty of the medical school, Professor Phelps' teaching and direction of research will fall under other faculties as well. He will teach public health engineering and sanitary science to medical and engineering students and to qualified graduate students, which in connection with selected courses in preventive medicine, physiology, nutrition, etc., may lead to the degrees of Master of Science and Doctor of Philosophy in Public Health.

Professor Phelps' courses will be marked by the very broad scope given to the subject of public health engineering, which besides the topics of water and sewerage, will deal with the other factors of environment, namely air, ventilation, lighting, food and occupational hazards. The Department of Sanitary Science is thus the second of the major departments to be established in the Institute of Public Health.

An American Health Congress—The National Health Council is developing plans for an American Health Congress to be held in Atlantic City during the week of May 17, 1926. At this time leading authorities in the fields of cancer, tuberculosis, heart disease, blindness, preventable diseases, social and mental hygiene, public health nursing, and health education will speak. The talks to be given will be of a popular nature and will not be technical presentations such as are given at our annual meetings.

This meeting will not be a substitute for the annual meetings of the participating organizations, with the exception of the three nursing associations: the National Organization for Public Health Nursing, the National League of Nursing Education, and the American Nurses Association. Judging from the attendance at the last annual meeting of public health nurses, at least 6,000 may be expected from that group alone.

The following members of the National Health Council will coöperate in this meeting: American Child Health Association, American Heart Association, American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, National Committee for Mental Hygiene, National Committee for the Prevention of Blindness, National Organization for Public Health Nursing, National Tuberculosis Association, United States Children's Bureau, United States Public Health Service, and Women's Foundation for Health.

August von Wassermann, M.D., 1866–1925—August von Wassermann, discoverer of the test which bears his name, died March 16. The medical world is thereby deprived of one of its ablest investigators.

Dr. Wassermann was born February 21, 1866, at Bamberg, Bavaria. He studied medicine at the universities of Erlangen, Munich, Vienna, and Strassburg, receiving his degree from the last in 1888. He became assistant for infectious diseases at the Koch Institute of the Charité at Berlin, gaining the title of Professor in 1898. In 1901 he was appointed to the University of Berlin as Professor Extra-Ordinary (Privatdozent), which position carried no emoluments outside of the opportunity to teach and experiment in the university medical school and its laboratories. Within a year his interest and devotion brought him a full professorship. In 1906 he assumed the duties as head of the Division for Experimental Therapy and Serum Research at the Royal Institute for Infectious Diseases at Berlin. In 1913, he became director of the newly founded Kaiser Wilhelm Institute for Medical Research at Dahlem, near Berlin. Dr. Wassermann had conferred upon him the title of Secret Councillor (Geheimrat) in 1907, and was also awarded the Japanese Order of the Holy Treasury, the Turkish Order of Ozman, the Spanish Order of Elizabeth the Catholic, and the Reichs Adler Order. He was a prolific contributor to medical literature; wrote a very able discussion on general studies, particularly influenza, as an introduction to Ebstein and Schwalbe's Handbook of Practical Medicine; contributed regularly to the Eulenburg Encyclopedia, writing on immunity and serum therapy; published many articles on hemolysin and precipitin. His best known works are contained in the Handbook of Pathological Microörganisms which he published in collaboration with Kolle.

Though Dr. Wassermann's name has been connected with important researches dealing with the problems of cancer and tuberculosis, he has enshrined his name in medical annals by virtue of his work in the diagnosis and treatment of syphilis. He was a distinguished pupil of Koch and Ehrlich and has earned the name of a great benefactor of humanity.

LABORATORY

C. C. YOUNG *

The Effect of Freezing upon the Agglutinin Content of Blood Serum Obtained from Cows Reacting to the Abortion Test—In Kolmer's text book on Serum Therapy, agglutinins are described as possessing fairly resistant properties to heat and desiccation. Kolmer states that "agglutinins can withstand heating to 60 degrees C. for thirty minutes and lose their power only when heated to higher temperatures." They also resist drying, and their activity is best preserved in a desiccated state. No mention is made, however of the effect of freezing upon their power. In order to determine the answer to this question, the experiment herein reported was undertaken.

The samples of blood serum used in this experiment were obtained from four cows reacting positively to the agglutination test for carriers of *Alcaligines abortus*. The titer of the blood serum from each cow was as follows: No. 1, 1–32,000; No. 25, 1–32,000; No. 32, 1–16,000; and No. 35, 1–32,000.

The antigen was prepared by suspending the 48-hour growth of a Bureau of Animal Industry laboratory strain of *Alcaligines abortus* in a solution of .85 per cent saline and 0.5 per cent phenol. The medium used was a 6 per cent glycerin agar. The turbidity of the antigen was adjusted to compare exactly with the standard used by the Bureau of Animal Industry.

The procedure of the experiment was as follows: Each one of the four samples of blood serum was distributed in one c.c. amounts in four sets of seven small test tubes. The twenty-eight tubes of blood serum were then placed in a mixture of crushed ice and salt contained in an insulated box. The serum changed from a straw-colored liquid to a yellowish-white solid. The temperature of the frozen serum was –3 degrees C. At the end of one hour, 2 hours, 4 hours, 8 hours, 24 hours, and 72 hours, a tube of each of the four samples was removed. They were thawed at room temperature, and on thawing were found to be perfectly clear and similar to their appearance before they were frozen.

Agglutination tests were run on all the samples of melted blood sera. The same method and dilutions were used as were used in testing the unfrozen samples. The reactions were the same as occurred for the unfrozen samples.

That is, the agglutinin content of blood serum was not affected by exposing it to a temperature of –3 degrees C. for 72 hours.

These results, therefore, show that along with the properties of withstanding moderate heat and desiccation, these agglutinins also have the ability to withstand freezing.—H. R. Baker, University of Delaware, Newark, Delaware.

La Reaction Actuelle des Liquides de l'Organisme (The True Reaction of Body Fluids)—The author has reviewed in a brief monograph the subject of H-ion concentration in theory and in practice. A brief résumé of electrometric and colorimetric methods for the determination of the pH of blood and of urine are given. The article is a very compact statement of a subject dealt with usually in larger volumes, or slighted in text-books for lack of space. No new material is, however, presented.—Labbe, *La Medecine*, 6th year, No. 5 (Feb.), 1925. M. S. M.

Association of Scarlet Fever and Diphtheria—The association of scarlet fever and diphtheria has been investigated more particularly from the standpoint of post scarlatinal diphtheria. Routine examinations of aural discharges in cases of scarlet fever have shown a diphtheria-like organism frequently; most of those are of the nonvirulent type. Nose cultures vary from 8.6 to 12.7 per cent. The majority of these are also nonvirulent but true virulent types are found in the nose more

* Each month we desire to publish in the LABORATORY NOTES short, original articles, under the author's name, dealing with some phase of applied bacteriology, labor saving devices, modified methods, etc. Contributions should be in the hands of associate editor before the fifteenth of each month.—C. C. YOUNG, State Dept. of Health, Lansing, Mich.

frequently than in the ears. In a series of 14,770 scarlet fever patients, only those throats were cultured during the first four years which showed a membranous angina. In 6,180 of these patients, diphtheria-like bacilli were present in 71, or 1.1 per cent. It has been stated that where the two diseases occur in the same patient, diphtheria usually follows scarlet fever.—T. T. Crooks, *Am. J. Dis. Child.*, 29:379 (March), 1925. H. C. H.

A Method for the **Determination of Small Amounts of Iodine as Iodide and Iodate**—Standards for this determination were made by dissolving and diluting a water solution of KI to give equivalents of 0.01 to 0.1 mg. of iodine in ten test tubes. These tubes were of clear glass of about the same diameter and marked with a file to hold 15 c.c. The volume of the solution is made up to 15 c.c. in each tube. 0.5 c.c. of a solution of 1 g. of o-tolidine in 150 c.c. of 95 per cent alcohol was added and mixed by shaking. The unknown sample containing between 0.01 and 0.1 mg. of iodine was made slightly alkaline with NaOH. Ten c.c. of H_2O_2 was added, residue filtered and filtrate evaporated to 20 c.c., made exactly neutral to litmus with H_2SO_4 evaporated to slightly less than 30 c.c. and divided into two equal portions. To one 0.5 c.c. tolidine was added and made up to 15 c.c. To the other H_2S is added until saturation and the excess removed by boiling. 0.5 c.c. tolidine was also added and this made up to 15 c.c. Five c.c. of H_2O_2 was now added to unknown and standards as rapidly as possible. After 5 minutes the colors were compared. The value of the tube treated with H_2S is the total iodine. The other gives the iodide iodine value only. The method is made applicable to solutions which contain interfering substances (such as nitrites, bicarbonates, chlorides and bromides above 1,500 p.p.m. iron, copper, mercury) by the introduction of a preliminary steam distillation in acid solution with ferric chloride.—N. A. Lange and L. A. Ward, *J. M. Chem. Soc.*, 47:1000 (April), 1925. E. F. E.

Hemolytic Streptococci from Erysipelas—Cultures of a hemolytic streptococcus isolated from a human case of erysipelas were tested for ability to produce lesions by injecting various amounts intradermally in shaved rabbits. Severe lesions could be developed at will in this way despite the fact that intravenous or intraperitoneal inoculations of large doses of the cultures failed to kill. The lesions were of two sorts, phlegmonous and erysipelas-like. A serum capable of warding off the injurious action of the streptococcus on the skin was procured from animals receiving repeated intracutaneous inoculations of the organism. Normal serum by contrast had no protective effect. By intradermal injections at several points in the same normal rabbit of small quantities of mixtures of equal parts of serum and various dilutions of a suspension of streptococci it proved possible to test sera for the presence of substances protective against the streptococcus.—Rivers, *J. Exper. Med.*, 41:179 (Feb.), 1925. Author's abstract.

Blood Analyses in Asthma, Hay Fever, Etc.—Analyses of the nonprotein nitrogen, sugar, and plasma chlorides before and after various treatments were made on forty patients afflicted with asthma, hay fever, urticaria, and the like. The plasma chlorides were found to be relatively high; the sugar and nonprotein nitrogen were slightly above normal, particularly in the nonallergic type of asthma cases with long standing associated bronchitis. Treatment seemed to cause some reduction of these constituents, but no marked change was indicated.—Ramirez, St. George and Moses, *J. Lab. & Clin. Med.*, 10:199 (Dec.), 1924. M. S. M.

Serological Relationships Between Streptococci and Pneumococci—Using the complement fixation reaction with whole bacterial solutions as antigens, it has been possible to confirm the existence, within the non-hemolytic streptococcus family, of two great groups. One of these groups, that which may be designated as of the left side, is related in an orderly way to the hemolytic streptococci; the other of the right side, is similarly related to the entire pneumococcus family. In addition, the hemolytic streptococcus family shows a reactive range which relates it, though less closely, to the non-hemolytic streptococci of the right side, and to the pneumococci. The existence of these cross-relationships is not associated with the precipitable substance of either family, but may tentatively be presumed to be dependent upon the properties of the protein or lipoid-protein fraction of the bacterial cell.—Charles H. Hitchcock, *J. Exper. Med.*, 41:13 (Jan.), 1925. Author's summary.

The Nature of Bacterial Allergies—The authors point out the differences between true protein anaphylaxis and the various types of bacterial hypersensitiveness, of which the tuberculin reactions are the classical examples. Following experimental work on the bacterial allergies, the authors state that "there seems to be no further possibility of questioning the opinion that the development of tuberculin sensitiveness is definitely associated with the development of tissue reactions in the form of inflammatory processes; the mere development of antibodies on the injection of dissolved bacterial materials does not induce allergy." The paper is concluded by an authoritative discussion of the authors' views on this matter, of importance in connection with the increasing number of skin tests as used in health work. —Zinsser and Mueller, *J. Exper. Med.*, 41:159 (Jan.), 1925. M. S. M.

Anaphylaxis in Pneumococcus Immunity—Intraperitoneal injections of killed and living broth cultures of a virulent pneumococcus produce in guinea pigs a high degree of active immunity and a serum with strong protective power. Despite the protective power of such serum no agglutinins for the homologous organism and no precipitins for soluble derivatives were demonstrable. Guinea pig immunity to pneumococcus infection produced by the method described is not attended by cutaneous allergy to derivatives of the pneumococcus used for immunization. During the course of an artificially produced active immunity, anaphylaxis may at times be present and at times absent without any measurable effect upon the resistance of the animal to infection by intraperitoneal injection. In the particular instance studied, the experiments indicate that anaphylaxis to pneumococcus protein has no important effect upon the resistance of the animal to infection. It appears to be a concomitant without any significant rôle in the immunity mechanism.—George M. Mackenzie, *J. Exper. Med.*, 41:53 (Jan.), 1925. Author's conclusions.

Cutaneous Allergy and Pneumococcus Protein—Intracutaneous injection of guinea pigs with an alkaline extract of pneumococcus produces in about two-thirds of the animals an allergy with a skin reaction similar to the allergic skin response of tuberculosis. Continuance of the intracutaneous injections after the appearance of allergy results in its disappearance. The skin ceases to react. Neither the animals manifesting skin allergy nor those which fail to develop it show any significant alteration in susceptibility to pneumococcus infection by intraperitoneal inoculation. Similarly, animals desensitized by continuing the intracutaneous injections after the appearance of allergy show an unaltered susceptibility.—Mackenzie and Woo, *J. Exper. Med.*, 41:65 (Jan.), 1925. Authors' conclusions.

Pneumococcus Pneumonia in Mice—The administration of alcohol produces no evident histological changes in the lungs of mice. Following inhalations of pneumococci the organisms are not visible histologically in the lungs of mice either in the bronchi or alveoli. In partially immunized mice which have been exposed to a pneumococcus spray while alcoholized, true lobar pneumonia not infrequently develops. The primary lesion of such lobar pneumonia in mice is an interstitial inflammation of the alveolar wall and the infection spreads in the interstitial tissue like a cellulitis. A tentative explanation of the "lobar" distribution of pneumococcus pneumonia is offered. Branch and Stillman, *J. Exper. Med.*, 40:743 (Dec.), 1924. Autho s' conclusions.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

Coöperation in Accident Prevention—There are in normal times about 41,000,000 gainfully employed in this country; of these, about 13,000,000 are working in industrial plants, railroads, mines, and public utilities. Of the total number of workers, about 2,500,000 suffered injury or loss of life last year at the rate of 8,000 a day. In each 8,000 there were 70 fatalities.

Last year 6 per cent, or 60 out of every 1,000 workers, were injured in greater or lesser degree. Altogether 227,000,000 working days were lost, which, with an average wage of $4.50 meant a wage loss to the workers of $1,022,000,000 in 1923. Approximately 22 per cent of this wage is paid back in compensation. On the basis of a 300-day year this meant also that 757,000 men were taken out of industrial activities for a year.—A. Williams, *Safety*, 11:9–14 (Jan.–Feb.), 1925.

Vital Statistics England and Wales 1924—The corrected vital statistics for England and Wales have been issued by the Registrar-general. The birth rate was 18.8 per 1,000, the death rate 12.2, the marriage rate 15.3, and the infant mortality 75. The birth rate was the lowest recorded except during 1917–1919; the death rate was 0.6 per 1,000 above the 1923 rate, and the infant death rate was 6 per 1,000 above the rate of 69 in 1923. The excess of births over deaths was 257,016, the annual average increase in the preceding 5 years having been 335,352.—*Jour. A. M. A.*, 84:996 (March 28), 1925.

Health Conditions of Trinidad and Tobago 1923—The estimated population of Trinidad and Tobago in 1923 was 378,184. The white population is chiefly composed of English, French, Spanish and Portuguese. The large majority of the inhabitants are natives of the West Indies of African descent, the balance being made up of East Indians, estimated at 122,362 and a small number of Chinese. The birth rate was 34.7 and the death rate 20.89. The death rates per 1,000 from the principal diseases were: diarrhea and enteritis 1.39, malaria 2.06, tuberculosis 1.30, dysentery 0.52, enteric fever and hookworm 0.67.

The year was a very healthy one, the birth rate being high and the death rate and infantile mortality reaching a low record for the colony. Drainage schemes for the control of malaria are being continued in the country districts. The intensive treatment of hookworm disease was continued by the Rockefeller Board of Health. The climate is healthy and by no means injurious to Europeans, provided reasonable precautions are taken.—*Lancet*, 1:367 (Feb. 14), 1925.

Mortality in New York State, Exclusive of New York City, 1924—During 1924 there occurred in New York State, exclusive of New York City, a total of 68,341 deaths, giving a death rate of 14.1 per 1,000. The rate was 0.7 lower than the corresponding rate of 1923 which was 14.8, and 0.4 lower than the 5-year average for 1919–1923 of 14.5. Only one year, 13.7 in 1921, has shown a lower rate.

With the exception of deaths at 65 years of age and over, which, although decreasing over the corresponding total for 1923, increased by 1,000 over that of the 5-year average, general decreases in other age groups were indicated.

Deaths under one year of age were lower than those of any preceding year and 1,127 less in number than those of the preceding 5-year average, which was 8,414. The infant mortality rate was 71 in 1924, 79 in 1923 and 83 in 1919–1923. Contributing largely to the reduction in number of 1,132 infant deaths under 1 year over those of 1920–1923 were acute respiratory diseases, gastrointestinal diseases, premature birth and congenital debility. The death rate from diarrhea and enteritis under 2 years of age declined 40.2 per cent over that of 1919–1923. Malformations and injuries at birth increased over the 4-year average, 1920–1923.

Of the important epidemic diseases, whooping cough and acute anterior poliomyelitis are the only causes which recorded increases over

the 5-year average. Of the diseases common to adult life there was an increased mortality indicated from cancer, cerebral hemorrhage, acute and chronic nephritis, and organic heart diseases. Death from external violence likewise increased. Automobile accidents continued to maintain their position as the highest contributing factor to the increasing number of deaths from accidental causes, the rate for 1924 of 21.1 per 100,000 population showing an increase of 4.0 over the 5-year average of 17.1.—*N. Y. S. Weekly Bull.*, 2:42–43 (March 16), 1925.

Smallpox in England and Wales in 1924—For the 53 weeks beginning December 30, 1923, and ending on January 3, 1925, there were notified 3,784 cases of smallpox in England and Wales. Smallpox decreased in England and Wales from 289 cases in 1911 to 7 in 1917, but from 1917 to 1924 the increase has been striking, the total cases for the second 7 years being about 10 times those of the first 7. The 1924 incidence is far greater than that for any of the 14 years.

In 1924 the disease has prevailed chiefly in the Midlands and the north of England, while Wales and the southern counties have been practically free from it. The largest provincial cities remained remarkably free from the disease, as did London.

The fatality rate for the 14 years was 2.1 per cent; for the last seven years, however, it was only 1.3 per cent. These figures are based in general on the mild type of the disease, but several epidemics of the severe type are included. Since the European pandemic of 1870–1873 there has been a persistent though irregular decline in the death dealing power of variola. It is impossible, however, to state what the future will show.—*Lancet*, 1:185–186 (Jan. 24), 1925.

Pathologic Evidence Bearing on Disease Incidence in Calcutta—The postmortem records and the vital statistics of Calcutta show that one-third of the mortality is due to tropical disease and two-thirds to diseases of world-wide distribution. The age incidence shows 4 times as many deaths in persons over fifty in the London as in the Calcutta postmortems and this proportion is the same where the purely tropical diseases are excluded. The Calcutta figures show a greater excess in deaths from septicemia, tetanus, tuberculosis, lobar pneumonia, nontuberculous meningitis, and cirrhosis of the liver. The London series shows a marked excess in the case of circulatory diseases, especially in rheumatic endocarditis and mitral stenosis. The Indian races in Bengal have a lower resistance to many specific diseases, such as pneumonia, cholera, dysentery, tuberculosis and fevers, their most frequent causes of death, than Europeans living in Bengal. This is the main cause, in addition to the prevalence of tropical diseases, for their low expectation of life, and is probably due partly to low racial vitality, associated with the custom of early marriage, and partly to insanitary conditions.—L. Rogers, *Glasgow Med. J.*, 21:1–27 (Jan.), 1925, ab. *Jour. A. M. A.*, 84:855 (March 14), 1925.

Contribution to the Experimental Study of Tuberculous Infection Conveyed by the Dental Route—From original experiments with monkeys and rabbits the author concludes that tuberculous infection can be shown experimentally and clinically to take place through the teeth and this even with an attenuated virus. The pulp of milk teeth offers an ideal medium for the propagation of the tubercle bacillus. Infection of the pulp of the permanent teeth may give rise to a type of tuberculosis comparable in every way with that of pulmonary tuberculosis as observed clinically. Glandular involvement is frequently but not invariably present. It is of the greatest importance for persons in contact with the tuberculous to preserve the integrity of the teeth and gums. J. Mendel, *Ann. de l'Inst. Pasteur*, 37:537, 1923, ab. *Tubercle*, 6:256–257 (Feb.), 1925.

Public Health in Basutoland 1923—The general health of Basutoland in 1923 was good, and with the exception of typhus fever and smallpox there were no serious epidemic diseases; 68 cases of measles, 49 of chickenpox, 9 of diphtheria, 111 of whooping cough, and 22 of enteric fever, were reported, all more or less sporadic. Typhus fever is still epidemic in all the districts, 958 cases and 120 deaths being reported. Propaganda as regards prevention has been carried out in various ways with assistance by the native press. Smallpox of a mild type was epidemic, mostly in the central districts throughout the year; 671 cases and 14 deaths were reported. Other diseases reported were: influenza, 337 cases, no deaths; dysentery, 56 cases, 1 death; pneumonia, 106 cases, 2 deaths; cerebrospinal meningitis, 8

cases, 1 death. More people are availing themselves of the free treatment for syphilis. This disease accounts for much ill health and disablement. The various forms of treatment in the leper colony are being used with much success.—*Lancet*, 1:474 (Feb. 28), 1925.

Vital **Statistics of British Guiana 1923**—The birth rate of the Europeans other than Portuguese for 1923 was 11.3 and that of the Portuguese was 24.8. The birth rate for the other races varied from 28.8 for the blacks to 37.1 for the mixed races. The death rate of the Europeans excluding the Portuguese was 11.9 and that of the Portuguese was 30.4. The East Indians had the highest death rate, 31.5. The total infant mortality rate was 177. The climate, though warm, is distinctly cooler than that of other British Colonies in tropical latitudes and Europeans and northern races enjoy consistently good health.—*Lancet*, 1:367 (Feb. 14), 1925.

Health **Conditions in Kenya Colony and Protectorate 1923**—The crude European birth rate in Kenya Colony and Protectorate in 1923 was 20.1 as compared with 27.04 in 1922 and the death rate was 6.6 as against a rate of 9.04 in 1922. For the town of Mombosa the total crude death rate was 16.6 as compared with 16.7 in 1922; for Nairobi the rate was 23.5 as against 21. The total non-native population is estimated at 45,633 of which 9,651 are Europeans. The natives number about 2,500,000. There were a number of small outbreaks of plague in 1923. These were not severe, but it seems clear that this disease is spreading and as the resources of the country are developed, it may be expected that the incidence of plague will grow. There was an extension of the medical campaign against yaws; 64,344 cases were treated in 1923 as compared with 34,233 in 1922.—*Lancet*, 1:317–318 (Feb. 7), 1925.

Health Conditions in Fiji—According to the 1921 census, the population was 157,266 of which 3,878 were Europeans. The general health of the natives in 1923 was satisfactory. The birth rate for the period was 32.24 and the death rate 22.53. Apart from a widespread epidemic of a mild type of influenza with but few deaths, no serious epidemics of infectious diseases occurred. A few small groups of cases of typhoid were reported but the disease did not become epidemic. Dysentery, once very prevalent, is now of comparatively rare occurrence. Yaws and kindred diseases have been greatly reduced. Forty thousand individuals received hookworm treatment. Fiji is exceptionally healthy for a tropical country, although the climate is generally unsatisfactory for those suffering from tuberculosis or asthma. It is protected against most of the infectious fevers by its distance from a continent. Malaria, plague, yellow fever, smallpox or cholera have never gained admittance.—*Lancet*, 1:367 (Feb. 14), 1925.

SANITARY ENGINEERING

ABEL WOLMAN, C.E.

Notes on the Mosquitoes of Lee County, Georgia—The different species encountered during the summer of 1923 are recorded, together with notes on the breeding places and habits of the different species.—Francis Metcalf Root, *Am. J. Hyg.*, 4:449 (Sept.), 1924. A. W. B.

Further Notes on the Male Genitalia of American Anopheles—Descriptions of the male genitalia of A. pseudomaculipes, A. intermedium and A. tarsimaculata are given. Examination of new material indicates certain errors in a previous report which are corrected in this article.—Francis Metcalf Root, *Am. J. Hyg.*, 4:456 (Sept.), 1924. A. W. B.

Investigations on the Control of Hookworm Disease. XXXIII—The Significance of Egg Count Data in Necator Americanus Infestations—This paper discusses the question of what constancy, if any, there might be in the day to day output of hookworm eggs from a given human host. Two human infestations of N. americanus were studied for 15 to 40 consecutive days respectively. The following conclusions of the study are given: the dilution egg counting technique furnishes information of measurable exactness on the number of ova per gram of feces; daily output of eggs from a hookworm infestation is constant within the limits of the natural variations in daily fecal outputs; the number of eggs, whether per day or per gram, reflects the degree of infestation in number of worms harbored, the greater the number of stool eggs counted increasing the value of this interpretation.—Norman R. Stoll, *Am. J. Hyg.*, 4:466 (Sept.), 1924. A. W. B.

Density of Population and Mortality in the United States—Experimental evidence pertaining to the lower forms of life shows plainly that there is a biological (as distinguished from a social or economic) effect of crowding. Using the United States Census reports and mortality statistics an effort is made to find what relationship, if any, exists between density of population and mortality. The two methods of treating the subject, (1) partial correlation and (2) a comparison of rates, are described. The mean county in the United States Registration Area in 1910 had an area of 2,850 square miles, a total population of 29,050 and an anuual death rate of 11.0 per 1,000. By the method of partial correlation, it has been shown that with the exception of the death group "65 and over" there is no relation between population density and mortality in the rural portions of the counties. There is no influence of the age constitution of cities when measuring the relation between population density and mortality. —Thomas J. LeBlanc, *Am. J. Hyg.*, 4:501 (Sept.), 1924. A. W. B.

The Reaction of Pathogenic Fungi to Ultra Violet Light and the Role Played by Pigment in This Reaction—Experiments show: X-rays, up to 10 skin doses, have a slightly stimulating action on pathogenic fungi of the skin; visible and near ultra-violet light, together, are stimulating in moderate doses, but have a slightly inhibitory effect in heavy doses on non-pigmented fungi; non-pigmented fungi may be sensitized by eosin so that they are readily killed by visible light; far ultra-violet light has a strong lethal action on non-pigmented fungi. It is suggested that the function of pigment in fungi, and in the human skin as well, is to regulate the energy absorbed by the underlying cells so that they receive only a sublethal stimulating dose.—Antonio Pena Chavarria and Janet H. Clark, *Am. J. Hyg.*, 4:639 (Nov.), 1924. A. W. B.

Threshold Air Currents in Ventilation—This study was undertaken to determine the air currents and their physiological effects in producing the fresh and comfortable sensation in well-ventilated rooms. Threshold velocities were determined by exposing the cheek to a

current of air the velocity of which could be varied with fine gradations from zero to a high velocity. Air currents of threshold velocity, when directed against the cheek for five minutes do not appreciably affect skin temperature when the temperature of the current is equal to the temperature of the room. Over temperature and humidity range investigated, no relationship was found between humidity of the current of air and threshold velocity. Experiments indicate that the air movement in a well ventilated room should not fall below the threshold value for the skin of the cheek.—Anne M. Baetzer, *Am. J. Hyg.*, 4:650 (Nov.), 1924. A. W. B.

The **Effect of Carbon Tetrachloride on the Egg-Laying Powers of the Female Hookworm**—In most instances carbon tetrachloride in doses up to 2 c.c. had very little inhibiting action on the egg laying power of the female ancylostome. All inhibition had disappeared by the seventh day. The theoretical number of worms responsible for the eggs counted was found to be high and, on theoretical grounds, it was predicted that female ancylostomes would be found to have about five times the egg laying powers of female necators.—W. C. Sweet, *Am. J. Hyg.*, 4:691 (Nov.), 1924. A. W. B.

Treatment of Hookworm Disease with a Combination of Carbon Tetrachloride and Oil of Chenopodium. Comparison of Results of Simultaneous and Delayed Administration of Magnesium Sulphate—A combination of carbon tetrachloride, three parts, with oil of chenopodium, one part, in adult dose of 2.4 c.c. is very effective in an area of low ancylostome infestation. Simultaneous administration of magnesium sulphate tends to delay the expulsion of many worms until the second day.—Fred L. Soper, *Am. J. Hyg.*, 4:699 (Nov.), 1924. A. W. B.

INDUSTRIAL HYGIENE

DRS. E. R. HAYHURST AND N. C. DYSART

Report of **Benzol Committee**—The studies during the year 1924 of the Sub-Committee on Benzol, Chemical Section, National Safety Council, have confirmed their previous view that benzol poisoning is a very real industrial hazard. This was brought out in the Committee's Second Progress Report at the Louisville Congress. Their investigations disclosed a series of 15 deaths and 83 more or less serious illnesses occurring as a result of industrial benzol poisoning during the past few years. The principal cause of poisoning lies in processes depending upon the evaporation in the atmosphere of the workroom of benzol used as a solvent or vehicle, thus leaving the dissolved substance in place. As an early diagnostic sign, the white blood cell count was applied as a criterion, and a deviation of 25 per cent from the accepted normal of 7,500 was regarded as probably suggestive of benzol poisoning. Activated charcoal was employed in the estimation of actual benzol content of the workroom air and recorded amounts varying from 28 to 4,140 parts per million.

Local exhaust ventilation at the point of origin of vapors appears to be a highly efficient procedure for avoiding benzol poisoning, no abnormal blood counts having been observed in workrooms provided with this protection. The vapors may be exhausted downward or upward, depending upon whether the evaporation is from warm or cold objects or they may be drawn off laterally if the peculiarities of machine construction demand. In most cases general room ventilation cannot be regarded as an adequate substitute for local exhaust ventilation.

Occupational Diseases of Mining—In the year 1922, three miners' afflictions topped the list of compensable diseases in Great Britain. Miners' nystagmus was first with 4,091 new cases, "beat" knee came second with 1,721, "beat" hand third with 1,138, while "beat" elbow with 200 new cases came immediately after industrial lead poisoning with 247. E. L. Collis and T. J. Lewellyn have just issued a "Report on Miners' Beat Knee, Beat Hand and Beat Elbow." The disease in each case is a subcutaneous cellulitis of the part affected

* The editors of this Section will gladly receive contributions from members. Please address all material to Hartman-Ohio Bldg., Columbus, Ohio.

originating from trauma, chronic or acute, the result of work. The opinion has been accepted and in this discussion some support is given to the belief that, owing to the posture assumed, when undercutting coal, work in thin seams, especially if wet, tends to cause "beat knee" and also "beat hand," which latter disease is also influenced by the hardness of the coal. That osteophytes, detached from the olecranon process, come to exist in the chronically inflamed bursa of the joint in "beat elbow" is shown by radiograms. —Ed., *Lancet*, 207, No. 5278, 867 (Oct. 25), 1924.

Helium in Compressed Air Work—Recent experiments conducted at the U. S. Bureau of Mines Experiment Station, Pittsburgh, Pa., would indicate that a synthetic atmosphere, composed of a mixture of helium and oxygen might be used in reducing the hazard of caisson disease and also in materially reducing the time of decompression, that is, the process by which divers and compressed air workers are restored to normal air conditions after finishing their work. Helium diffuses rapidly in the body fluids and tissues, resulting in rapid elimination of the gas from the tissues during decompression and minimizing the risk of formation of the dangerous bubbles which characterize the use of air or nitrogen-oxygen mixtures.—*Press Release*, U. S. Dept. of Interior (Feb. 27), 1925.

Details of these tests are contained in Serial 2670, by R. R. Sayers, W. P. Yant, and J. H. Hildebrand, copies of which may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

Spray Painting Regulations—Regulations covering spray painting, adopted by the Wisconsin Industrial Commission became effective May 10, 1924. These orders govern the use and control of spray coating apparatus without regard to the nature of the paint used. —Industrial Commission of Wisconsin.

Conference Board of Physicians in Industry—At its 46th meeting held in New York, January 16, 1925, the Conference Board of Physicians in Industry stressed particularly the importance of the care of trivial injuries. Only 20 of 2,000 cases of infection occurring among 32,500 workers during 1924 received treatment before the infection appeared. Delay in reporting for treatment is assigned as the chief reason for the occurrence of infection in slight injuries. First aid treatment might be given by a trained attendant when a physician or nurse is not procurable but a physician should see the cases within 24 to 48 hours. After more serious injuries the members favored returning the employe to his work pending complete recovery. The practice of compensation boards in permitting the worker to prolong idleness on grounds of incomplete recovery was considered an important factor in the development of traumatic neuroses and malingering. Many injured workers will do better active work with the injured part at their regular occupation than by going through passive movements and specified active exercises at home or in a physiotherapeutic clinic, and the mental stimulation which comes from regular employment is much more beneficial. —F. L. Rector, *Pub. Health Rep.*, 40, No. 8, 367 (Feb. 20), 1925.

Phosphorus Poisoning in Chinese Match Factories—In a report to the Industrial Committee of the National Christian Council of China as published in the *China Journal of Science and Arts*, Vol. III, Nos. 2-3, Feb. and March, 1925, the author states there is evidence of the occurrence of cases of phosphorus necrosis of the jaw among match workers in China. But, according to the best available advice, the cases are relatively few in number as compared with western experience for reasons which are not clear.

There are sound grounds for the belief that the match manufacturers of China intend to discontinue the use of white phosphorus at the end of this year (1924) in pursuance of the Pekin government's prohibition. Thus cases of "phossy jaw" will automatically cease to occur, and a cheap and available agent for the commission of suicide will be removed. In the writer's judgment the general conditions of labor prevailing in match factories have worked far more ill to the health of the workers than poisoning by white phosphorus.

Gas Masks for Gasoline and Petroleum Vapors—In testing the chemical type of gas mask for respiratory protection against vapors of petroleum products it was found that one containing 600 c.c. of activated charcoal protects the wearer one hour or more against 1 per cent of gasoline vapor in air otherwise normal. The charcoal should be kept dry.

A canister may be used repeatedly as the charcoal may be revivified by passing air at 105 degrees C. through the canister for two hours or more. The 600 c.c. charcoal filled canister mask protects against 1 per cent hydrogen sulphide in air for three and one-half minutes, but if filled with soda lime the protection will last for 17 minutes. However, soda lime does not protect against petroleum vapors. When petroleum vapors and hydrogen sulphide are both encountered in considerable proportions, canisters containing both charcoal and soda lime are of advantage but should not be used in air exceeding 2 per cent H_2S, or H_2S plus petroleum vapor. Hose masks are useful where the distance from pure air is short. A wearer can draw air by inhalation through 50 to 100 feet of three-fourths inch or larger hose without undue effort. However, a blower of the fan type that delivers air under either direction of rotation and does not when stopped retard the passage of air is of advantage. The Gibbs and Paul self-contained oxygen breathing apparatus, which has been officially approved by the Bureau of Mines for mine rescue and recovery work is not advised for use in petroleum vapors for periods exceeding ten minutes. The McKaa oxygen apparatus, in process of production, was recently devised by the bureau especially for use in petroleum vapors and will protect for at least two hours. —S. H. Katz and J. J. Bloomfield, *Technical Paper*, 348, U. S. Bur. of Mines, 1924.

Progress Reported by the Workers' Health Bureau—"We start the year 1925 tremendously encouraged by the growth of the Workers' Health Bureau. Four new states, Pennsylvania, Indiana, Rhode Island and New Hampshire, have been added during the past year. We now have affiliated with us five trades—bakers, cigarmakers, hatters, machinists and painters. Our membership is seven times what it was at the end of our first year. As we go to press we are able to report 72 labor bodies in nine states affiliated with us."—*Bull.* No. 7, Jan., 1925.

Of 100 union hatters of Danbury, Conn., examined by experts, 43 had mercury poisoning or, as it is known in the trade, "hatters shakes." Boys 20 and 21 years old are already so badly poisoned that their hands shake continually, while many of the men who have served longer at the trade cannot even feed themselves. The United Hatters of America, organized for 60 years, did not realize the extent of the dangers nor how to get rid of them. The bureau is assisting them in plans to organize a health department. (Bull. No. 1, Nov. 1, 1923.) Seven claims for compensation for mercury poisoning have been won by the Danbury hatters. For the first time since the Connecticut Compensation Law was amended in 1919, mercury poisoning has been recognized as an occupational disease in the trade. The bureau assisted materially in investigating and bringing these cases to notice. Hatters are poisoned by nitrate of mercury used in preparing rabbit fur for making felt hats. Poison is absorbed through the skin and also inhaled. The favorable compensation decisions have had an immediate effect in improving neglected factory conditions. Machinery for controlling poisonous fumes, steam and dusts, has been installed in some of the worst shops. In European countries mercury poisoning is practically unknown due to regulations of factory conditions.—*Bull.*, 7, Jan., 1925.

After two years of agitation the Bureau has succeeded in getting the State Department of Labor to make a complete study of conditions in bevelers' and glaziers' shops in New York. A study of these trades has never been made in this country. Bevelers examined in the Journeymen Painters and Allied Crafts Health Department showed a higher percentage of overweight, bad posture, constipation, defective vision, varicose veins and defective hearing than workers in the garment, chemical, tobacco, glass, and other industries. A study made of glaziers included a chemical analysis of putties used on the job as well as medical examinations. A large percentage of lead was found in the putties. Urine examinations also showed lead. Glaziers get lead putty on their hands and swallow it. They also breathe it in as dust after it has caked on the floor.—*Bull.*, 7, Jan., 1925.

The New York Painters' health agreement which was put into operation last May has notably improved sanitary conditions. On every job the placard containing the ten health rules gained by District Council No. 9 from their employers is given conspicuous space. Drinking cups and fresh water are provided and decided improvement has been made in providing washing water. The agreement was gained after long negotiations in which the bureau represented the union. The

regulations were drawn up by the bureau and include provisions for ventilation and rest periods, prohibition of benzol and wood alcohol, analysis of suspicious materials, and provisions for sanitary safeguards.—*Bull.*, 7, Jan., 1925.

Although the New Jersey Occupational Disease Law went into effect in July, 1924, the records of the Industrial Commission disclose the fact that no claims for compensation for lead or benzol poisoning have been filed. The bureau has drawn up forms for reporting accidents and suspicious working materials in order to acquaint members with their rights under the law, as well as medical forms to be given to physicians at the time of examination. These will assist in proving an occupational disease.—Bull., 8, March, 1925.

The Bureau sent 1,083 questionnaires to city centers, state federations, painters' state conferences, and painters' district councils, requesting them to send information regarding any bills on health and safety which they intended to introduce at the next sessions of their legislatures. It is startling to find that among the replies so far received, the majority show that labor is doing nothing to secure health and safety measures. The Workers' Health Bureau is planning a campaign urging trade unions to take the initiative in these matters and organize for health!—*Bull.*, 2 (Dec. 31), 1923, Workers' Health Bureau, 799 Broadway, New York.

Annual Report of the Industrial Commission of Ohio—During the fiscal year ending June 30, 1924, legislative enactments have increased weekly maximum compensation from $15.00 to $18.75, the maximum death award from $5,000 to $6,500, and the reduction from 5 to 3 of the number of employes necessary to make an employer amenable to the law. Also a provision for penalization of an employer who violates some specific law for safety requirement resulting in injury, became effective in part on January 1, 1924. During the year the largest number of claims in the history of the department were filed. There were 180,677 non-fatal cases and 933 deaths. The increase over the last year was due to the better employment conditions. The number of cases heard was 245,432 or an average of over 950 per working day. There were 7,103 medical examinations conducted by the members of the department's medical staff.

The report emphasizes the handicap to efficient administration because of the crowded work space provided for the department.

The balance in the treasury to the credit of the Workmen's Compensation Fund on June 30, 1924, was slightly over 46 million dollars. The receipts for the year amounted to over 13 million dollars, of which 2½ million dollars represented interest and over 10½ million dollars, premium receipts. To disburse this amount required the issuance of approximately 350,000 warrants.

Since August, 1921, the date when the *occupational disease law* became effective, there has been collected approximately for this purpose the amount of $837,120.97. The amount expended from the Occupational Disease Fund for the same period of time for compensation, medical attention, etc., was $101,097.13. During the year there were 8 deaths and 12 temporary total disability cases which were claims against the Occupational Disease Fund. Seven hundred and eighty-two occupational disabilities were reported, of which 619 were included in special hearings by the Commission, and 53 cases were disallowed including four death claims. Dermatitis and lead poisoning constituted the vast majority of claims.—State Dept. of Industrial Relations, Columbus, Ohio.

FOOD AND DRUGS

HARRY W. REDFIELD, PH.D.*

Pellagra **Prevention**—In Volume 40, No. 2, Jan. 9, 1925, of *Public Health Reports*, there appeared a masterly article by Drs. Joseph Goldberger and W. F. Tanner, entitled "A Study of the Pellagra-Preventive Action of Dried Beans, Casein, Dried Milk and Brewer's Yeast, with a consideration of the Essential Preventive Factors Involved." The need for this study lay in the fact that while the previous study began in 1914 clearly demonstrated the preventability of the disease by means of an appropriate diet (see *Pub. Health Rep. 30*, 3117, 1915, and *Pub. Health Rep. 38*, 2361, 1923, it did not show what foods or food factors were the essential ones, and, moreover, the diet employed was relatively expensive and possibly in excess of minimal requirements, and so might not be readily adopted by households and institutions of restricted incomes. The more recent study was undertaken to overcome these faults. After a detailed description of the various experiments conducted with the different food products involved, accompanied by numerous case histories, there is a discussion of the "Preventive Factors," followed by these conclusions:

(a) A liberal supply of protein presumably of good biological quality does not completely prevent, though it may modify, the clinical picture of pellagra by notably delaying or preventing the development of the distinctive dermatitis. This modifying action may be of an indirect, sparing nature.

(b) In the prevention (and presumably causation) of pellagra there is concerned a heretofore unrecognized or unappreciated dietary factor which we designate as factor P-P. This may be effective with but little, possibly without any, coöperation from the protein factor.

(c) Factor P-P may possibly play the sole essential rôle in the prevention (and causation) of pellagra.

(d) Factor P-P is present in brewer's yeast, in milk and (on the basis of our experience with fresh meat) in lean beef; it is very low or lacking in dry soy beans, dry cowpeas, butter, cod-liver oil, and canned tomatoes.

Diet Sheets—The March issue of the little journal "Dietary Administration and Therapy" which is published in Cleveland by the Hospital Dietetic Council, contains valuable diet schedules to be used in the treatment of epilepsy, in the feeding of infants and children, in the treatment of chronic intestinal invalids and in the treatment of diabetics.

Milk and Cream Consumption—It is on the increase and was estimated by the U. S. Department of Agriculture at 52,772,000,000 pounds in 1924 compared with 50,440,000,000 pounds in 1923. This increase is believed to be due to improvement in quality of the product, delivery in sanitary containers, and a general increase in knowledge of the value of milk in the diet, the result of milk campaigns and special advertising. The figures are based on reports from boards of health of 354 cities having an aggregate population of 35,303,398. The encouragement afforded by these figures is somewhat offset by the fact that the consumption in the cities still lags behind the optimum health standard and was only .951 of a pint per day, while the rural consumption reached almost one and one-half pints. The consensus of medical opinion is that, taking children and adults together, the minimum consumption should be about a pint and a half. So there is still a lot of work for the dairy councils and the child health crusaders yet to do.

Frozen Canned Foods—As the usability of such products is often questioned, the following statement from the *Official Record* of the United States Department of Agriculture for March 25 is quoted:

* Address publications and correspondence to 641 Washington Street, New York City.

"Most canned foods will stand a little freezing without appreciable change. Repeated freezing and thawing cause the goods to become flabby and give a flat taste. In all cases the interior of the cans shows a distinct attack upon the tin. With fruits the coating of the cans is made to appear as though it were galvanized. Canned foods will resist a fair degree of heat or cold without serious injury but continued heat or a very high temperature or repeated freezing and thawing will cause deterioration in quality. The Bureau of Chemistry is of the opinion that if the containers of frozen foods are not burst or ruptured in any way that would permit the entrance of microörganisms such as molds, yeast, and bacteria, the food products will remain wholesome and may be eaten with safety."

ABSTRACTS

The Composition and Decomposition of Eggs—Miscellaneous data are reported on the composition of eggs, including particularly the percentage of fatty acids in fresh and stale egg yolk, analytical constants of the fat of hen's eggs, duck's eggs, and Chinese preserved egg yolk, and the reaction of egg yolk and white to indicators.—R. T. Thomson and J. Sorley, *Analyst*, 49, No. 580, pp. 327–332 (1924).

The Chemical Composition of Edible Viscera from Meat-Producing Animals—Analyses of edible viscera, which are summarized in tables, are reported from the Bureau of Animal Industry, U. S. D. A. The material was all obtained at local abattoirs and the analytical work done immediately after slaughter in the case of constituents subject to change through enzyme or bacterial action, and in general within 24 hours after slaughter.

In commenting on these data, the authors state "in so far as the data bear upon the question of nutritive value, they show that the edible viscera are preëminently nitrogenous foods, and as such are most properly compared with meat as a standard. A practical equivalence between lean beef muscle and the livers of ox, calf and hog in this respect, is indicated, while the other organs examined were all inferior to beef muscle in their nitrogen content. With the exception of hearts, tongues, lungs, and stomachs, on the other hand, the edible viscera examined were found to be richer in phosphorus than is beef muscle."—W. C. Powick and R. Hoagland, *J. Agr. Research* (U.S.) 28, No. 4, 339–346 (1924).

The Importance of Mineral Elements in the Nutrition of Children—A general discussion based upon recent authoritative literature, 22 references to which are appended.—J. B. Orr, *J. State Med.*, 32, No. 9, pp. 421–430 (1924).

The Prevention and Cure of Rickets by Means of Bile—It is reported that 7 c.c. of fresh gall-bladder bile from the pig has prevented the development of rickets in rats on the low phosphorus, rickets producing diet of McCollum et al., and that 1 c.c. of the bile had a well marked inhibitory action. Similarly, 7 c.c. of the bile per day cured rickets in rats in 15 days.—R. Kapsinow and D. Jackson, *Proc. Soc. Exper. Biol. & Med.*, 21, No. 8, pp. 472, 473 (1924).

The Food Value of Intarvin—In an attempt to determine whether intarvin can actually be used in the body as a food, experiments were conducted on two diabetic patients and four normal subjects. It is of significance that the diabetic patients and two of the four normal subjects found the intarvin so distasteful that they were unable to eat enough to yield conclusive results. The other two subjects were placed upon a diet sufficient to maintain nitrogen equilibrium, and after a preliminary period of two days the carbohydrate and fat were shifted isodynamically to produce ketosis. On the fourth day of this diet intarvin was substituted for the bulk of the food fat. Daily determinations were made of the total nitrogen of the urine and of ammonia, total acetone bodies, organic acids, and the H-ion concentration of the urine.

The data thus obtained showed for the two subjects during the use of intarvin a protein sparing action, a decrease in ketosis, and a lowering of the respiratory quotient indicating that a fat was being burned. Analyses of the feces showed that from 92 to 98 per cent of the food fat and of intarvin was absorbed.

It is noted that the most agreeable methods of taking it were to eat it dry and wash down with black coffee or to mix with scrambled eggs or with Roquefort cheese salad.—E. M. Benedict, W. S. Ladd, M. L. Strauss and R. West, *Proc. Soc. Exper. Biol. & Med.*, 21, No. 8, pp. 485–487 (1924).

Optimum and **Limiting Hydrogen-Ion Concentrations for B. Botulinus and Quantitative Estimation of Its Growth**—This is a report, with many references to the literature, of an extensive investigation of the optimum nutritional substances for the growth of Bacillus botulinus and particularly of the optimum range of H-ion concentration for the growth in the most suitable media and under carefully controlled conditions of time, temperature, etc.

In the medium selected as most suitable, phosphate-buffered double-strength veal infusion 2 per cent Difco peptone, the optimum range of H-ion concentration for the growth of vegetative forms was from pH 6 to 8.2, inclusive, with a mean near pH 7 and a limiting range for three-day growths of from pH 5 to 9, inclusive. The optimum range for spore inoculums was from pH 6 to 7.2, thus indicating that a slight acidity is a stimulus to spore germination. With increasing temperature from room temperature to 37° C. (98.6° F.), there appeared to be more rapid growth of the organisms and a greater production of toxin.

A study is also reported of the growth of vegetative and spore inoculums of B. botulinus in canned peas, corn, string beans, and spinach, with reaction unchanged and in the same media with acidity neutralized before sterilization. The pH values of the unchanged media were peas 5.88, corn 6.40, beans 5.36, and spinach 5, and of the same media with the acidity neutralized so far as possible 7.05, 7.13, 5.85, and 5.94, respectively. Each of the media in which the acidity had been partially neutralized showed growth, most abundant in the peas and spinach and least in the corn and beans. In the natural media growth was less vigorous with all except the corn. No growth was evident with the spinach. It is concluded that the most active limiting factor in the growth of B. botulinus in vegetable media is the natural acidity of the medium.—C. C. Dozier, *J. Infect. Dis.*, 35, No. 2, pp. 105-133, figs. 7 (1924).

Studies on the **Chemistry of Cod Liver Oil—II. A Cod Liver Oil Concentrate Manifesting Both Antirachitic and Antiophthalmic Properties**—In this report the authors state that they have succeeded in preparing from cod liver oil "by means of a special extraction and a saponification process" a highly concentrated extract of both antirachitic and antiophthalmic vitamins. The crude concentrate, of which 0.5 gm. was obtained from 1,000 gm. of cod liver oil, is said to be a brown sirupy mass crystallizing in light yellowish brown needles radiating from a central point. These crystals are insoluble in water but soluble in ordinary organic solvents. On removing cholesterol the extract can be further concentrated to 0.1 gm.

It is stated that, while the exact chemical composition of the concentrate is unknown, the presence of carbon, hydrogen, oxygen, and sulfur and the absence of nitrogen, phosphorus, and the halogens have been demonstrated.—H. E. Dubin and C. Funk, *Proc. Soc. Exper. Biol. & Med.*, 21, No. 8, pp. 458-460 (1924).

Studies on Vitamin X—Further studies on vitamin X are reported briefly as follows:

Preliminary steps in the isolation and concentration of vitamin X—On saponifying wheat germ oil at 30° C. with 20 per cent alcoholic potassium hydroxide, vitamin X is said to remain in the unsaponifiable fraction which comprises about 5 per cent of the total oil. From this it can be concentrated further by the use of such solvents as pentane, methyl alcohol, and petroleum ether to about 0.3 per cent of the original oil.—H. M. Evans and G. O. Burr.

Stability and solubilities of the food substance or vitamin X required for reproduction—Beef muscle boiled for an hour and lettuce leaves autoclaved at 15 lbs. pressure for the same length of time did not lose their activity as a source of vitamin X. The vitamin has been found to be soluble in ethyl alcohol and ether but insoluble in water, thus placing it in the group of fat-soluble substances.—H. M. Evans and K. S. Bishop.

Proof of the power of the body to store the substance X required for reproduction—Evidence that the animal body has the power of storing vitamin X is reported as follows: Animals deprived of vitamin X retain their fertility for some time and then lose it. After being cured of sterility by diets rich in vitamin X they may continue through two succeeding gestations without it. A single large dose of vitamin X on the day of copulation has proved as effective as several small daily doses. Tissues of animals reared upon adequate foods have been found to contain vitamin X, and tissues of animals which have been reared upon X-free foods do not contain it.—H. M. Evans and K. S. Bishop, Abs. in *Anat. Record*, 27, No. 4, pp. 203, 204 (1924).

Unique Dietary Needs for Lactation—The results are given of an experiment conducted at the University of California which indicate the presence in leaves, egg yolk, and meat of a substance necessary for maximum milk production in rats. The work has been carried on by the use of litters of rats produced by females receiving synthetic diets deficient in vitamin X, it being explained that first litters may be produced by rats even with the deficiency of this reproductive vitamin. However, the size of the rate at weaning time is only about one-half that of rats produced on normal diets.

By exchanging about 100 young produced on synthetic diets with an equal number from mothers receiving a table scrap diet, it has been shown that the young produced on the deficient diet have the same capacity to grow when suckled by foster mothers receiving a table scrap diet as do young produced by mothers on the table scrap diet. It has further been shown that the extraction of the fat from the substances containing this dietary factor for lactation does not reduce the value of the residue as a source of the factor.—H. M. Evans, *Science*, 60, No. 1540, pp. 20–22, figs. 2 (1924).

A Table of Standard Diets for Use in Diabetes—Standard diets for use in diabetes are given in tabular form and discussed. The diets are divided into four classes, as follows: Group A diets, for cases showing clinical signs of acidosis, contain a relatively large proportion of available carbohydrate and have a glucose fat ratio of about 2:1. Insulin should always be employed with diets in this group. Group B diets are intended to desugarize the patient and have a glucose fat ratio of 1:1. The diets in Group C form an increasing series which are used to test the limit of the patient's tolerance, and those of group D are maintenance diets.—R. Pybus and D. M. Lyon, *Brit. M. J.*, No. 3321, pp. 326–329 (1924).

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CHILD HYGIENE

TALIAFERRO CLARK

Experimental Rickets—Paradoxical as it may seem, there is no disease of childhood about which so much is known and at the same time so little as rickets, particularly from the standpoint of the causative factors. In an attempt to throw some light on these factors the author carried on extensive studies to determine the effect of cereals and their interaction with other factors of diet and environment in producing rickets. Experiments were made with a view of demonstrating, if possible, the relative rickets producing effect of different cereals, and to discover the cause of these differences. The results of these experiments indicate that some cereals and cereal products have a powerful interfering influence on bone calcification, varying with the amount and type of cereal eaten and with the general make-up of the diet. Furthermore, when the diet is deficient in antirachitic vitamin, it appears that increasing the amount of cereal increases the interfering influence, if other factors of the diet and environment remain constant.

Among the substances tested "oatmeal has preeminently worse influence on bone-formation," than corn, barley, rice, wheat and flour in the order mentioned.

The action of cereals on bone calcification is antagonized to varying degrees by foodstuffs containing the rachitic vitamin. Of these, cod-liver oil is the most effective; whole wheat in a fairly large quantity, and egg yolk are also potent antagonists. Butter is of relatively small value unless associated with a fairly high calcium intake.

In the case of a diet greatly deficient in antirachitic vitamin, increasing the calcium content hinders to some extent the development of rickets, calcium carbonate being more effective than calcium phosphate.

The author is of the opinion that the rickets-producing effect of cereals is due to two kinds of action, (1) in which that part of the cereal which is incorporated in the growing organism and leads to its growth is probably partially responsible, thus involving the carbohydrate and protein; and (2) the interference with bone calcification by a substance which after digestion and absorption of the grain is capable of interfering with bone calcification. "This substance can be obtained by saponification of oatmeal with soda and extracting the acidified mixture with petrol ether." However, it appears that the nature and properties of this cereal constituent and its mode of action are not well known. "White flour contains much lass calcium and phosphorus than oatmeal, but results in better bone formation when the antirachitic vitamin intake is deficient, because it contains much less of the substance or substances interfering with ossification. The author believes that evidence of interaction and balance among food constituents produced by his investigations suggests doubt as to the value of the expression "optimum calcium content of the diet."

Of the practical points of dietetics arising from the results of this study the following suggested by the author deserve thoughtful consideration:

"The present work does show that perfect bone-formation can be obtained even when large quantities of oatmeal are eaten if the rest of the diet be adequate. On the other hand the worst cases of malnutrition seen in human beings can be easily reproduced in animals by feeding them on foodstuffs which bulk largely in the national dietary along the lines described in this investigation. Apart from extreme malnutrition, however, it would appear not improbable that in this country where the average diet is either deficient in or contains a border-line quantity of antirachitic vitamin and calcium, and where sunshine is negligible, the ingestion of oatmeal during pregnancy and lactation of women and in growing children does much harm."—The Effect of Cereals and Their Interaction with Other Factors of Diet and Environment in Producing Rickets, by Edward Mellanby. Medical Research Council, *Special Report Series No. 93*, London, 1925.

Posture of School Children—The City of Havre, which has had an organized system of medical inspection of elementary school children since 1878, has for the last few years extended the work to include the medical inspection of nursery schools, of which there are seventeen. Of a total of 1,760 children examined in these schools, it was found that 40 per cent of them maintained some form of faulty posture. Of the causative factors of this condition in young children, the investigator was of the opinion that the faulty posture observed was largely due to the clothing worn. Owing to the great increase in the cost of living, the clothes are worn for a long time and often the younger members of a family are obliged to wear the discarded clothing of their older brothers or sisters, which are frequently ill-fitting and too tight.

Another important causative factor in the production of round shoulders in the case of boys is thought to be unsuitable braces. The point of crossing on the back is very often at too high a point in the dorsal region, with a mechanical disadvantage producing an undue arching of the spine and restriction of the pectoral muscles.—Adrien Loir, *Med. Off.*, March 28, 1925.

First General Child Welfare Congress—Notice has been given in these pages of the forthcoming First General Child Welfare Congress to be held at Geneva August 24–28, 1925, under the patronage of the Swiss Federal Council. The program for this council has just been announced as follows:

Section I. Hygiene and Medicine

(1) Comparison of the measures adopted in different countries with a view to reducing prenatal, neonatal and infant mortality

(2) Rational feeding of: (a) Babies; (b) Children of preschool age (up to five); (c) Children of school age (five to fourteen)

(3) Applied heliotherapy

(4) Prevention of crippling

(5) Unification of statistics relating to prenatal, neonatal and infant mortality

Section II. Charitable Assistance and Social Welfare

(1) Protection of mothers (girl mothers, widows, destitute women, etc.), the legal aspects of paternity being excluded

(2) Comparison of measures taken in different countries with a view to assisting necessitous orphans, waifs and strays

(3) Protection of children between the period elapsing from the time of leaving school and full employment in factories (Social welfare applied to the problem of vocational guidance)

(4) Situation of foreign children in the country of residence

(5) Assistance to emigrating children during the voyage

(6) Standardization of definitions of mental deficiency and its different degrees

Section III. Education and Propaganda

(1) Education of public opinion in matters concerning the protection of childhood (*e.g.*, Baby Week in Great Britain and in Argentina)

(2) Methods of raising funds for child welfare purposes

(3) Organization of play

(4) Education of the child with a view to international peace

(5) Training of social welfare personnel to deal with matters concerning childhood and adolescence.—*Bulletin of the Save the Children Fund International Union*, Geneva, March 10, 1925.

Health of the Working Child—Of unusual interest is the record of the health conditions of 412 children under 16 years of age who are regularly employed. Approximately one-fifth of the children had serious visual defect and only one-seventh of the cases were adequately corrected with glasses.

Dental defects requiring immediate treatment were observed in approximately one-third, and 12.8 per cent had hypertrophied tonsils, 4 per cent heart affections, 1 per cent symptoms suggestive of early tuberculosis, approximately one-fourth had some degree of flat foot, and only 45 per cent had normal posture.

"Of the 412 children examined,

18 had no physical defects

99 had minor defects requiring hygienic regulation and diet

179 had moderate defects requiring minor medical care

93 had more serious conditions causing temporary or partial incapacity but quite capable of cure by treatment

16 had organic diseases or physical impairment capable of mitigation

7 had such serious organic lesions as to require immediate medical treatment and probable cessation from work."

Of the 922 defects recorded, 260, or 28 per cent, were considered to be accentuated by some condition of work.—*Special Bulletin No. 134*, N. Y. State Dept. of Labor, December, 1924.

Frequency of **School Medical Inspection**—Article 16, Special Service Regulations, 1925, and Circular 1354, British Board of Education, group children to be medically inspected in the schools as follows:

1. All children as soon as possible after their first admission to public elementary school and in any event not later than 12 months after their admission.

2. All children who are between the ages of 7 and 8 on the first day of the calendar year.

3. All children who have attained the age of 12 years on the first day of the calendar year and have not been medically inspected after attaining the age of 12.—*Public Health*, April, 1925.

Health **Education**—Recognizing the very great practical importance and value to the national well-being of educating children in health, and the rapid extension of health teaching in the schools throughout the country, the United States Public Health Service undertook a study of the courses in health education and related material issued by the several state departments of education, with the view of analyzing this material, particularly from the standpoint of the health content. The conclusions and recommendations appearing in a recent report based on this study, should be of interest to all workers in this field:

I. School health education program—It should be appreciated that the production of a well balanced and comprehensive program for school health work is a complex and difficult task, and should be formulated by competent persons. The problem of preparing a comprehensive health program has been most effectively met by the use of a committee made up of representatives from different fields of public health work.

II. Terms in use to designate state school health programs—The term should include the various health activities which are today deemed essential parts of the school health program.

III. Scope of school health education—A comprehensive program should include: health training and instruction; physical training as related to health; health supervision of children and teachers to include daily health inspection, health examinations and health correction; preparation of teachers for health training and instruction; the hygienic arrangement and administration of the school program; mental hygiene; and hygiene of the school plant.

IV. Health habit training—Outlines on health-habit training, in order to serve as an efficient guide for teachers, should apply the psychology of habit formation and carry this training through all the elementary grades. The outlines which are seemingly most efficient group the instruction in hygiene and physiology around the training in health habits, with change in emphasis on personal habits in the first five grades to home and community problems beginning with the sixth grade.

V. The content of health instruction—The most common defects that should be guarded against are: Overcrowding with subject matter; including information not within the range of the child's experience; including unessential and impractical information; misinterpreting scientific facts.

VI. Subject matter on physiology—The main emphasis should be on the study of the function and hygiene of the different anatomical systems, and only the simplest facts of anatomy necessary to the understanding of the hygiene of the body should be taught.

VII. Subject matter on community hygiene—Sufficient instruction should be given in community hygiene, so that pupils may be equipped, upon completing the high grades, to take an intelligent interest in the community's public health problems.

VIII. Health examination and inspection—Daily health inspection should include inspection for signs of communicable diseases or other abnormal physical conditions, an examination of pupils in health habits, and sanitary inspection of the school room.

IX. Physical training in the health program—Physical training should be correlated with other closely related health activities. For this reason, it cannot ordinarily be most effectively administered if set apart as a division unrelated to the other health activities included in the health education program.—*Public Health Bulletin No. 152*, U.S.P.H.S., Washington, D. C., 1925.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN *

Criticisms Would Be Interesting—"I note with a great deal of interest the columns you are filling with comments on the publications of health departments in the JOURNAL. To me they are most interesting reading, but would be much more interesting if some criticism were introduced into the comments. They certainly can't all be good. Some of them must be really rotten. But of course you are limited by custom and tradition and can probably say nothing unless it is a boost." Thus writes a reader of this department.

Right, you are, Dr. M——. Everyone enjoys a massacre—of the other fellows. But generally we have been selecting good points so that others might make use of the better things. But, again, there have been strenuous objections to some things said in these pages *because the writers thought we had been unduly and unfairly critical!* So there you are.

But there is plenty of material available for criticism. Do you wish more of it? Thumbs up! or thumbs down?

The One Big Chance of the Year—The annual session of the A.P.H.A. offers the big opportunity each year for workers in public health publicity to get together and learn from each other. It offers the very best opportunity for seeing the latest and best helps for publicity and educational work, and samples of the best material turned out during the preceding year. It offers a time and place for getting real light on problems and perplexities. If the tentative program does not seem to cover all you wish to get, please write to the secretary of the section who is the editor of this department of the JOURNAL.

"Brickbats and Bouquets"—The address for securing this pamphlet, mentioned in May issue of the JOURNAL under "How to Please Everybody?" was incomplete. Write to Public Service Bureau, *Chicago Tribune*, Chicago, Ill., if you wish a copy.

Health Education and Publicity at St. Louis—The tentative program for the Section at the St. Louis convention of the A.P.H.A. includes a printed matter clinic, the psychology of public health publicity, clinic on public speaking, and a dinner for those actually doing health publicity. There will be an exhibit of health posters from other lands. The section will have headquarters as at Detroit where those interested may get together. Books, scrap-books and samples of choice and new publicity and educational materials will be shown. Consultation hours will be held for those caring to ask questions or to submit past or future material for examination. Books on printing, advertising and other subjects can be examined and, if desired, copies ordered at the convention book shop of the A.P.H.A.

A New Letter Writing Machine—A new machine is on the market for producing individually addressed letters for less than two cents each for ribbon and labor cost. The name, address and salutation perfectly match the letter—they are produced by the same motion that produces the letter. Write Secretary Calver of the A.P.H.A., if you wish full information about this machine.

Publicity at Denver in June—Public speaking and psychology of appeals clinics, case work publicity, cost of mail appeals, rural publicity, personal appeal money raising, and the "first performance upon any stage" of the two prize plays will be features of the program of the Committee on Publicity Methods at Denver in connection with the National Conference of Social Work. There will be exhibits, consultation hours with specialists, showings of motion pictures, and get-together

* Please address questions, samples of printed matter, criticism of anything which appears above, etc., to Evart G. Routzahn, 130 East 22d St., New York City.

gatherings. The National Conference is booked for Wednesday, June 10, to Wednesday, June 17. For complete final program and further information address Committee on Publicity Methods, 130 East 22d Street, New York, N. Y.

Fourth of July in Village and Country—A nation-wide Fourth of July picnic is being planned by the American Farm Bureau Federation. There may be local chances for health agencies having a share in the picnic. Consult your local farm bureau. If you wish the official plan and suggestions write to American Farm Bureau Federation, 58 East Washington St., Chicago, Ill. If anyone has suggestions for picnic stunts, please send them to this department of the JOURNAL.

Prize Play Awards—George S. Brooks, of the Rochester, N. Y., *Herald*, won the first prize of $350 for his play, "No Cause for Complaint," in the contest conducted by the Committee on Publicity Methods. Nancy Brosius, of Cleveland, was awarded the second prize of $150 for her play, "The Last of the Family." The prizes were provided by Joseph Lee, president of the Playground Association of America. Both plays will be presented June 16 at Denver.

Making it Easy—The 57 or so executive secretaries of county tuberculosis and public health committees in New York State recently assembled for conference with the state executives. Before leaving home every one of the 57 received from the state office a mimeographed story which needed only the insertion of the name of the secretary and the name of the local committee to make it ready for local editors. The lead of the story told that the local worker was to attend and participate in the conference and then outlined the main features of the conference. Both the local and the state work secured publicity because it was news that some one was to attend and participate in a conference. State Secretary George J. Nelbach, State Charities Aid Association, 105 East 22d St., New York, N. Y., will send you a copy if you ask for it.

Beware of New Postal Rates and New Classifications and New Regulations—Social agencies will be most interested in the new third class rate of 1 cent for each 2 ounces carrying books and catalogues of not less than 24 pages and not weighing more than 8 ounces. All other printed matter, leaflets, etc., of less than 24 pages, and proof or proof with manuscript, will be charged 1½ cents for 2 ounces. All mail, except first class (letters), weighing over 8 ounces will be handled on present parcel post basis, with an additional service charge of 2 cents for every package of whatever type. There is also a "Special Handling" charge of 25 cents for securing first class mail handling of parcel post packages. Special delivery of such items may be had for 10, 15 or 20 cents, according to the weight. Private mailing cards or post cards, whether or not they are marked "post card," will be charged 2 cents. The house organ charge, "non-profit publications," will bear an increase from 1¼ to 1½ cents a pound.

Popular Health Articles—One way to secure more and better treatment of health topics in popular magazines is for health workers to write the editors regarding such articles as they publish. Commend the good, and call attention to the bad. Of course we will be patient and not scold when author or editor makes a mistake or presents false doctrine, but *be sure to let the editor know what is wrong.* Please send a carbon of your letter to the editor of this department of the JOURNAL.

Here are some recent articles:

Elderly Athletes—Remember, You're Not a 1925 Model! By William Hemmingway.—*Saturday Evening Post*, May 9, 1925.

Fair, Fit and Forty. By Clara Belle Thompson.—*Saturday Evening Post*, April 18, 1925.

Have *You* Been Vaccinated Lately? By L. D. Parlin.—*Collier's Weekly*, April 18, 1925.

High Cost of Babies (The). By Ida L. Albright.—*Atlantic Monthly*, 135:586–594 (May), 1925.

Light Refreshments. By Woods Hutchinson, M.D.—*Saturday Evening Post*, 197:16–17, 51–52 (May 2), 1925.

Make Your Sport Fit Your Age. By Walter Camp.—*Collier's Weekly*, 416 West 13th Street, New York City, April 25, 1925. Five cents.

Three Times a Day. By Myron M. Stearns.—*Collier's Weekly*, 416 West 13th Street, New York City, May 9, 1925. Five cents. Illustration at bottom of page suggests an idea for food exhibit or leaflets.

LAW AND LEGISLATION

JAMES A. TOBEY, LL.B.

Municipal Public Health—The 1925 Municipal Index, issued by the *American City Magazine* of New York, a 500-page volume devoted to municipal affairs, contains a number of items of interest from the standpoint of public health law. One of these is an outline for a model code of municipal ordinances, presented by Mr. Edward D. Greenman, Assistant Director of the New York State Bureau of Municipal Information. Health, being an essential feature of municipal administration, is, of course, recognized by an article (XII) in chapter one, which is the administrative code, while chapter four comprises the sanitary code. In chapter five on the public welfare, article one deals with public nuisances. Chapter ten is the plumbing code and article three of chapter fifteen, dealing with public utilities, is concerned with the water supply. On the whole, this seems to be a well drafted outline. It is refreshing to see nuisances and plumbing assigned to some section other than that relating directly to public health. The article on the health department (Art. XII, Chap. I), however, contains an item on municipal cemeteries, which does not belong there. Incidentally, the American Public Health Association has a Model Health Code, giving chapters on organization, and also the control of communicable diseases. This code was drafted by a committee several years ago and is still valuable, but probably should be revised and expanded. It might well include a complete outline for a municipal sanitary code, arranged in a logical way, as well as some specific provisions, such as those for the control of disease.

Other items in the Municipal Index include a discussion on zoning by Frank B. Williams in an article on "Progress of City Planning Law During 1924." As we pointed out some months ago, zoning ordinances to be valid must be actually based on the police power, that is, enacted in the interests of public health and safety. As we write, the Supreme Court of the District of Columbia is considering the constitutionality of the zoning law for the city of Washington. The opponents, who wish to convert residential property into stores, contend that such action would not be prejudicial to health. Among the witnesses called by the District was the health officer who testified as an expert that public health was involved. While sentimentally zoning is a good thing and beneficial for the welfare of a municipality from the esthetic side, it is sometimes difficult to show legally that the prohibition of stores, for instance, promotes the public health. The United States Department of Commerce has a bulletin on zoning which contains the outline of a model law.

The year 1924 in community recreation is discussed in the Municipal Index by H. S. Braucher. Among other matters he gives a list of provisions of an ideal state law and also recounts recent legislation on the subject. School legislation in 1924 is described in an article on "Recent Progress in Public Education" by John J. Tigert, United States Commissioner of Education. The Report of the National Conference on Street and Highway Safety, held in Washington in December, 1924, is given in full, including legislative principles involved. The Municipal Index also has a section on public health. The whole book is well worth a place in the library of any sanitarian. It can be secured through the book department of the Association.

The Health Laws of Philadelphia—A ten page pamphlet entitled "Your Rights and Duties Under the Health Laws of Philadelphia" has been printed for distribution in that city by the Metropolitan Life Insurance Company. Nearly a score of civic agencies coöperated in the compilation of this bulletin, which is valuable chiefly for its educational effect. The pamphlet could be much improved by a succinct introductory statement and by the arrangement of its items in a more logical manner, based, for instance, on the appraisal form for city health work of the American

Public Health Association. As it is now, food, housing and garbage disposal requirements are placed first, whereas child hygiene and the control of communicable diseases, which are vastly more important, come later. Specific references to local ordinances, so that the citizen could readily consult the original source, would also be helpful. The Metropolitan has these matters in mind and in issuing similar pamphlets on other cities which are planned will endeavor to improve the form of presentation.

Uniformity in Workmen's Compensation Laws—The National Industrial Conference Board of New York City has recently issued a special report (No. 31) on uniform medical provisions for workmen's compensation acts in the United States. This 28-page pamphlet is divided into two parts, the first, called the introduction, outlining the wide differences in the various existing state laws, and the second giving some suggested provisions. It is stated that the medical provisions now in force are, as a rule, quite similar, but that they contain important differences to which conflicting decisions by commissions and courts have contributed. Sanitarians will be interested to know that, according to the report, occupational diseases are now compensable in nine states: California, Connecticut, Illinois, Massachusetts, Minnesota, New Jersey, New York, Ohio and Wisconsin. In five of these states: Illinois, Minnesota, New Jersey, New York and Ohio, schedules of diseases are listed, while in the other four the compensation law has been interpreted by the commissions to include diseases arising out of employment. A recent bulletin (No. 379) of the United States Bureau of Labor Statistics, entitled "Comparison of Workmen's Compensation Laws of the United States as of January 1, 1925," says, however, that occupational diseases are recognized in twelve states. In addition to the eight given by the National Industrial Conference Board's report, the federal bureau lists "Hawaii, North Dakota (by construction of the bureau), Porto Rico, and the United States."

The Board has outlined the principles, but has not phrased them in legal language, though they seem to cover the whole medical aspect of workmen's compensation. Among them is one to the effect that "compensation should be granted for such diseases as are proven to be due to causes peculiar to the occupation of the worker or which result from an unexpected or unforeseen event arising out of and in the course of employment." In this same general connection the former United States Commissioner of Labor Statistics, Royal Meeker, contributed an article on "Minimum Requirements in Compensation Legislation" to the *Monthly Labor Review* of the Bureau of Labor Statistics for November, 1919. He recommended that all compensation laws should be extended to include occupational diseases, and that the commission be given power to grant compensation for all such injuries incident to employment. The present Commissioner of the Bureau of Labor Statistics, Ethelbert Stewart, has informed the writer that he considers a uniform workmen's compensation law covering the whole field impractical, but that minimum standard requirements are feasible. The National Conference of Commissioners on Uniform State Laws has, however, drafted a uniform workmen's compensation law.

The report of the National Industrial Conference Boards covers many other items than occupational diseases. This board, by the way, represents the employers' side in industry and will be remembered for having assailed the Public Health Service in 1920 for its "unwarranted conclusions" regarding the eight-hour and ten-hour day.

Home Economics and Citizenship Training—The United States Bureau of Education has just issued a bulletin (1925, No. 3) with the title "Contribution of Home Economics to Citizenship Training," being the proceedings of the national conference of city supervisors of home economics held in Washington, April 21, 1924. It seems as though conferences are always being held in Washington under the auspices of federal bureaus. A considerable portion of this pamphlet deals with health and there is a symposium on "The challenge of the health education movement to home economics," the gist of which seems to be that health is one of the primary aims of the home economics movement. Of special interest also is a paper by Dr. A. C. True on how the federal departments are meeting the demands for home economics. Seven of the ten executive departments, and likewise five of the independent establishments, have an interest in this subject. In all, Dr. True mentions twenty-seven separate bureaus or other branches of the government which are

concerned in some way with home economics. This compares favorably with the number which are interested in public health, which is at least thirty. The four federal agencies which do the largest amount of home economics work are the Bureau of Home Economics and the Extension Service (both in the Department of Agriculture), the Federal Board for Vocational Education (independent), and the Bureau of Education in the Interior Department. Perhaps some one will sooner or later suggest the coördination of federal activities for home economics.

What is Public Health Law?—On the first page of the new third edition of Dr. G. M. Price's book on "Hygiene and Public Health" occurs this statement, "Sanitary law, or 'public health law,' also called 'state medicine,' are terms applied to rules, regulations and laws prescribed by state or municipality as compulsory upon individuals or communities for the preservation and promotion of public health." The last part of this definition is better than the first. Whatever sanitary law is or is not, it certainly is not state medicine. If it is called that, it is so-called erroneously. Public health law is that branch of jurisprudence which deals with the application of the common and statutory law to the principles of hygiene and sanitary science. State medicine means the operation of medical relief under the direct auspices of the state. The American Medical Association has defined state medicine to include all public health work not approved by county or state medical societies, but that definition is a biased one with which no sanitarian will completely agree.

The National Board of Health—Dr. Price in his book has an interesting chapter on federal, state and municipal hygiene. In it he makes one statement which is a trifle inaccurate. He says, "At one time, in 1882–1884, there was a special federal health department, but it was discontinued because of lack of appropriation." The exact facts were that a national board of health was created by Congress in 1879 for a period of four years. In 1882 the duties of the board were restricted to investigations of cholera, smallpox and yellow fever. No appropriations to the board were made after 1885 and the act creating it was repealed in 1893.

Court Decisions—The Oklahoma Court of Criminal Appeals has held that within reasonable bounds the legislature may confer regulative powers on the State Board of Health and give to that board authority to adopt rules and regulations having the force and effect of law (Shilkett v. State, 232 Pac. 127). This is a well established rule of law, laid down by many courts.

The Supreme Court of Massachusetts had held that the sale of food dangerous to health renders the manufacturer or the seller liable to third persons not the direct purchasers for injuries received as a result of consumption of the food (Richenbacker v. California Packing Corporation, 145 N. E. 281). This is, in general, the established rule of law, being based on the theory of implied warranty. In this case the injury was due to a piece of glass in a can of spinach.

The *Public Health Reports* for March 27, 1925, digests a number of court decisions, some of which we have previously mentioned. Typhoid fever due to an employe drinking water furnished by the employer has been held compensable by the Supreme Judicial Court of Maine in Brodin's Case, 126 Atl. 829. The right to compel issuance of a permit by a local board of health where the city ordinance said that the board "may" issue it, was denied by the New Jersey Supreme Court in the case of Doben v. Board of Health of Paterson, 127 Atl. 38.

Miscellaneous—"Specialized Courts Dealing with Sex Delinquency" is the title of a new book issued by the Bureau of Social Hygiene of New York. It is written by George E. Worthington of the American Social Hygiene Association and Ruth Topping of the Bureau of Social Hygiene, and comprises a study of the procedure in Chicago, Boston, Philadelphia and New York. The fifth chapter gives a summary and comparative study of these courts, while the sixth contains standards for a socialized court for dealing with sex delinquents.

Data on the laws and regulations in the various states dealing with the reporting of cases of syphilis, as well as information as to the recent tendencies of the disease, are being gathered by the Association of Life Insurance Presidents, which has headquarters in New York City.

Laws relating to vaccination are being assembled by the Association for Medical Progress also of New York.

Legislation pertaining to municipal sanitation in Texas, and the present status of the

public health laws of that state, with suggestions for needed changes, are presented in the *Texas State Journal of Medicine* for January, 1925, according to a recent issue of *Public Health Engineering Abstracts*.

A mimeographed summary of the work for 1925 of the National Committee for Mental Hygiene calls particular attention to the new law in Massachusetts requiring psychiatric examination and study of all prisoners sentenced to county jails for more than thirty days. A new division for the examination of prisoners has been created in the State Department of Mental Diseases to carry out this law and that of 1921 providing for examination of those convicted of a capital offense. The report says: "The importance of these two laws can hardly be over-estimated and they will undoubtedly be used as models for similar legislation in other states."

This month's legislative notes seem to have an unduly large number of references to material emanating from New York. Though few New Yorkers will admit it, there happen to be other parts of the country and we should like to receive material from them, if there is any, in order to comment upon it.

CONVENTIONS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Avenue, New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

June 3–5, National Federation of Day Nurseries, Chicago, Ill.

June 3–5, American Association of Engineers, Orlando, Fla.

June 4–5, Conference of State and Provincial Health Authorities of North America, Montreal, Canada.

June 7–9, United Medicine Manufacturers of America, Cleveland, Ohio.

June 8–13, National Probation Association, Denver, Colorado.

June 8–13, American Association of Hospital Social Workers, Denver, Colorado.

June 10–12, National Association of Travelers Aid Societies, Denver, Colo.

June 10–17, American Association for Organizing Family Social Work, Denver, Colo.

June 10–17, National Conference of Social Work, Denver, Colo.

June 15–20, National Tuberculosis Association, Minneapolis, Minn.

June 16–19, National Eclectic Medical Association, Oklahoma City, Okla.

June 22–27, American Physical Education Association, Los Angeles, Cal.

June 27, Eugenics Research Association, Cold Spring Harbor, N. Y.

June 28–July 4, National Education Association, Indianapolis, Ind.

June 29–July 1, Canadian Public Health Association, Montreal, Quebec.

July 20–25, International Council of Nurses, Helsingfors, Finland.

July 20–28, World Federation of Education Associations, Edinburgh, Scotland.

August 1–6, American Home Economics Association, San Francisco, Cal.

August 24–28, General Child Welfare Congress, Geneva, Switzerland.

August 25–28, National Medical Association, Chicago, Ill.

October 19–22, American Public Health Association, St. Louis, Mo.

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